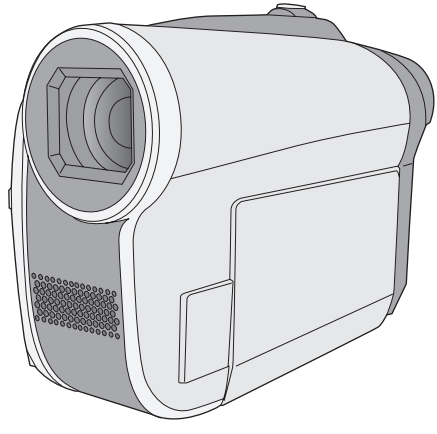
DVD Palmcorder®
CAMCORDER

Panasonic®

Operating Instructions
DVD Video Camera

Model No. **VDR-D50P/PC**



Before connecting, operating or adjusting this product, please read the instructions completely.
Spanish Quick Use Guide is included.
Guía para rápida consulta en español está incluida.

For USA assistance, please call: 1-800-211-PANA(7262) or, contact us via the web at: http://www.panasonic.com/contactinfo

For Canadian assistance, please call: 1-800-561-5505 or visit us at www.panasonic.ca

LSQT1319 A

Things You Should Know

Thank you for choosing Panasonic!
You have purchased one of the most sophisticated and reliable products on the market today. Used properly, we're sure it will bring you and your family years of enjoyment. Please take time to fill in the information on the right.
The serial number is on the tag located on the underside of your camera. Be sure to **retain this manual** as your convenient camera information source.

Date of Purchase

Dealer Purchased From

Dealer Address

Dealer Phone No.

Model No.

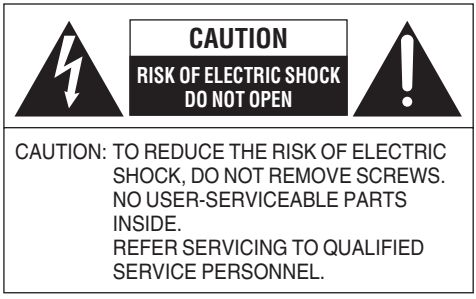
Serial No.

Safety Precautions

CAUTION: **DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE.**

CAUTION: **USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.**

The following mark and symbols are located on bottom of the unit.





The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING:

TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK OR PRODUCT DAMAGE,

- **DO NOT EXPOSE THIS APPARATUS TO RAIN, MOISTURE, DRIPPING OR SPLASHING AND THAT NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHALL BE PLACED ON THE APPARATUS.**
- **USE ONLY THE RECOMMENDED ACCESSORIES.**
- **DO NOT REMOVE THE COVER (OR BACK); THERE ARE NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.**

CAUTION!

DO NOT INSTALL OR PLACE THIS UNIT IN A BOOKCASE, BUILT-IN CABINET OR IN ANOTHER CONFINED SPACE. ENSURE THE UNIT IS WELL VENTILATED. TO PREVENT RISK OF ELECTRIC SHOCK OR FIRE HAZARD DUE TO OVERHEATING, ENSURE THAT CURTAINS AND ANY OTHER MATERIALS DO NOT OBSTRUCT THE VENTILATION VENTS.

CLASS 1
LASER PRODUCT

IEC60825-1:2001

CAUTION

This product contains a laser diode of higher class than 1. To ensure continued safety, do not remove any covers or attempt to gain access to the inside of the product. Refer all servicing to qualified personnel.

⚠ WARNING

- **AS WITH ANY SMALL OBJECT, SD CARDS CAN BE SWALLOWED BY YOUNG CHILDREN. DO NOT ALLOW CHILDREN TO HANDLE THE SD CARD.**

THE FOLLOWING APPLIES ONLY IN THE U.S.A.

FCC Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: To assure continued compliance, follow the attached installation instructions and use only shielded interface cables with ferrite core when connecting to computer or peripheral devices. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Declaration of Conformity

Trade Name:	Panasonic
Model No.:	VDR-D50P
Responsible party:	Panasonic Corporation of North America One Panasonic Way, Secaucus, NJ 07094
Support Contact:	Panasonic Consumer Electronics Company 1-800-211-PANA (7262)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1)This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Panasonic VDR-D50P

Tested To Comply
With FCC Standards

FOR HOME OR OFFICE USE

THE FOLLOWING APPLIES ONLY IN CANADA.

This Class B digital apparatus complies with Canadian ICES-003.

IMPORTANT SAFETY INSTRUCTIONS

Read these operating instructions carefully before using the unit. Follow the safety instructions on the unit and the applicable safety instructions listed below. Keep these operating instructions handy for future reference.

1) Read these instructions.

2) Keep these instructions.

3) Heed all warnings.

4) Follow all instructions.

5) Do not use this apparatus near water.

6) Clean only with dry cloth.

7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

11) Only use attachments/accessories specified by the manufacturer.

12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/ apparatus combination to avoid injury from tip-over.



13) Unplug this apparatus during lightning storms or when unused for long periods of time.

14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Precautions

USE & LOCATION

⚠ WARNING

- **TO AVOID SHOCK HAZARD** ... Your camera and power supply should not be exposed to rain or moisture. Do not connect the power supply or operate your camera if it gets wet. Your camera has been designed for outdoor use, however it is not designed to sustain direct exposure to water, rain, sleet, snow, sand, dust, or a direct splashing from a pool or even a cup of coffee. This action could permanently damage the internal parts of your camera. Do not attempt to disassemble this unit. There are no user serviceable parts inside. Unplug your camera from the power supply before cleaning.

⚠ CAUTION

- **DO NOT AIM YOUR CAMERA AT THE SUN OR OTHER BRIGHT OBJECTS**
- **DO NOT LEAVE THE CAMERA WITH THE EVF AIMED DIRECTLY AT THE SUN AS THIS MAY CAUSE DAMAGE TO THE INTERNAL PARTS OF THE EVF**
- **DO NOT EXPOSE YOUR CAMERA TO EXTENDED HIGH TEMPERATURE** ... Such as, in direct sunlight, inside a closed car, next to a heater, etc... This action could permanently damage the internal parts of your camera.
- **AVOID SUDDEN CHANGES IN TEMPERATURE** ... If the unit is suddenly moved from a cold place to a warm place, moisture may form on the disc and inside the unit.
- **DO NOT LEAVE YOUR CAMERA OR THE POWER SUPPLY TURNED ON WHEN NOT IN USE.**
- **STORAGE OF YOUR CAMERA** ... Store and handle your camera in a manner that will not subject it to unnecessary movement (avoid shaking and striking). Your camera contains a sensitive pick-up device which could be damaged by improper handling or storage.

CARE

- **TO CLEAN YOUR CAMERA** ... Do not use strong or abrasive detergents when cleaning your camera body.
- **TO PROTECT THE LENS** ... Do not touch the surface of the lens with your hand. Use a commercial camera lens solution and lens paper when cleaning the lens. Improper cleaning can scratch the lens coating.
- **TO PROTECT THE FINISH OF YOUR CAMERA** ... Before handling your camera, make sure your hands and face are free from any chemical products, such as suntan lotion, as it may damage the finish.

■ Indemnity concerning recording content

The manufacturer shall in no event be liable for the loss of recordings due to malfunction or defect of this unit, its accessories or recordable media.

IMPORTANT

■ Carefully observe copyright laws

Whatever you have recorded and created can be used for your personal entertainment only. Under copyright laws, other materials cannot be used without obtaining permission from the holders of the copyrights.

Battery pack (Lithium ion battery pack)

- Use the specified unit to recharge the battery pack.
- Do not use the battery pack with equipment other than the specified unit.
- Do not get dirt, sand, liquids, or other foreign matter on the terminals.
- Do not touch the plug terminals (+ and −) with metal objects.
- Do not disassemble, remodel, heat or throw into fire.

If any electrolyte should come into contact with your hands or clothes, wash it off thoroughly with water.

If any electrolyte should come into contact with your eyes, never rub the eyes. Rinse eyes thoroughly with water, and then consult a doctor.

Warning

Risk of fire, explosion and burns. Do not disassemble, heat above 60 °C (140 °F) or incinerate.

AC adaptor

This AC adaptor operates on AC between 110 V and 240 V.

But

- In the U.S.A. and Canada, the AC adaptor must be connected to a 120 V AC power supply only.
- When connecting to an AC supply outside of the U.S.A. or Canada, use a plug adaptor to suit the AC outlet configuration.
- When connecting to a supply of greater than AC 125 V, ensure the cord you use is suited to the voltage of the AC supply and the rated current of the AC adaptor.
- Contact an electrical parts distributor for assistance in selecting a suitable AC plug adaptor or AC cord set.

The socket outlet shall be installed near the equipment and easily accessible. The mains plug of the power supply cord shall remain readily operable. To completely disconnect this apparatus from the AC Mains, disconnect the power supply cord plug from AC receptacle.

Product Identification Marking is located on the bottom of units.

U.S.A./CANADA CONSUMERS: ATTENTION:



A lithium ion/polymer battery that is recyclable powers the product you have purchased. Please call 1-800-8-BATTERY for information on how to recycle this battery.

-If you see this symbol-



Information on Disposal in other Countries outside the European Union

This symbol is only valid in the European Union.

If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.

Contents

Accessories **9**
Features **10**
Quick Guide **11**

Preparation

Before using

1 **Parts identification and handling** **14**
2 **Power supply** **18**
Charging the battery 18
Inserting the battery 19
Charging time and recordable time 19
Connecting to the AC outlet 21
3 **About discs** **22**
4 **Inserting/removing a disc** **25**
5 **About SD cards** **26**
6 **Inserting/removing an SD card** **27**

Setup

1 **Turning the unit on/off**
Selecting a mode **28**
2 **Using the menu screen** **30**
Language selection 31
Menu list 31
3 **Setting date and time** **33**
4 **Adjusting LCD monitor/**
viewfinder **34**

Recording

Recording (Basic)

1 **Before recording** **36**
2 **Recording motion pictures** **37**
Recording modes and
recordable time 38
3 **Recording still pictures**
on an SD card **39**
Number of pixels and picture quality ... 40
4 **Recording functions** **41**
Zoom in/out function 41
Recording yourself 42
Image stabilizer function 43

Recording (Advanced)

1 **Recording functions of**
operation icons **44**
Operation icons 45
Backlight compensation/Fade/
Help mode/MagicPix/
Soft skin mode/Self-timer
2 **Recording functions of menus** **48**
Menus 48
Guideline/Aspect ratio/
Wind noise reduction/
Auto slow shutter
3 **Manual recording functions** **49**
Scene mode 50
Manual focus adjustment 50
White balance 51
Manual shutter speed/
aperture adjustment 52

Playback

Playback

1 **Motion picture playback** **54**
2 **Still picture playback** **57**

Editing

1 **Deleting scenes/files** **59**
Deleting scenes/files one at a time 59
Deleting multiple scenes/files 59
2 **Editing scenes** **61**
3 **Using playlists** **63**
Creating a new playlist 63
Editing a playlist 64
4 **Editing still pictures** **66**

Disc and SD card management

1 **Finalizing a disc** **68**
Un-finalizing a DVD-RW disc 69
2 **Protecting a disc/**
disc information **70**
Protecting a disc 70
Displaying disc information 70
3 **Formatting a disc/an SD card** **71**
Formatting a disc 71
Formatting an SD card 71

With other products

1 **Playback on TV** **72**
2 **With a DVD recorder/player** **73**
Playback on DVD recorder, DVD player, PC etc. 73
Copying (dubbing) recordings onto a DVD recorder's hard disk 73
3 **Recording (dubbing) images onto a VCR** **74**
4 **With a printer (PictBridge)** **75**

With a PC

Before using

1 **What you can do with a PC** **78**
2 **Operating environment** **79**
End User License Agreement 81

Setup

1 **Installation** **82**
Installing VideoCam Suite 82
Uninstalling the software 83
2 **Connection and recognition** **84**
About the PC display 85
To disconnect USB cable safely 86

Using software

1 **Starting VideoCam Suite** **87**
Reading the operating instructions of the software 87

Using a Macintosh

1 **If using a Macintosh** **88**

Others

Indications

1 **Indications** **90**
2 **Messages** **92**

Helpful hints

1 **Functions that cannot be used simultaneously** **94**
2 **Frequently asked questions** **95**
3 **Troubleshooting** **96**

Cautions for use **101**
Explanation of terms **104**
Specifications **106**
Number of recordable pictures on an SD card 108
Optional accessories **109**
Accessory Order Form (For USA Customers) 110
Request for Service Notice (USA Only) **111**
Limited Warranty (For USA Customers) **112**
Customer Services Directory **113**
Warranty (For Canadian Customers) **114**
Index **115**
Spanish Quick Use Guide/ Guía española para el uso rápido **116**

Accessories

Check the accessories before using this unit.

Battery pack
VW-VBG070A



AV cable
K2KZ9CB00002



AC adaptor
VSK0697



USB cable
K1HA05CD0017



AC cable
K2CA2CA00029 or
K2CA2CA00025



CD-ROM
LSFT0761



DC cable
K2GJ2DC00015



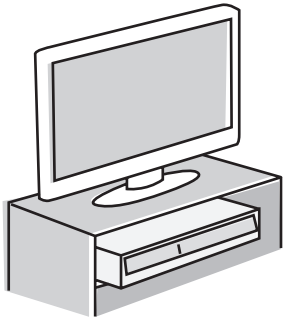
Features

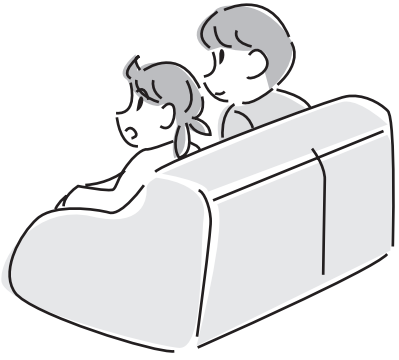
■ DVD-RW and DVD-R/DVD-R DL discs

Recordings made on DVD-RW or DVD-R/DVD-R DL discs cannot be played in other DVD devices or PCs unless the discs are finalized. (➜ 68)

■ Using with DVD player/recorder (➜ 73)

Just insert the disc into a DVD player/recorder compatible with 8 cm (3″) discs to play back the scenes recorded with this unit.
If you have a DVD recorder with hard disk, you can copy (dub) scenes recorded on a disc with this unit to the hard disk.





■ Using a PC to edit your recordings (➜ 78)

You can edit scenes with the software on the supplied CD-ROM and create DVD-Video discs.

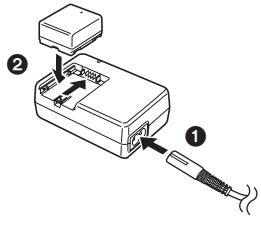


Quick Guide

■ Charging the battery

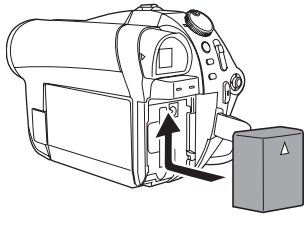
1 Connect the AC cable to the AC adaptor and the AC outlet.

2 Insert the battery into the battery charger by aligning the arrows.



■ Inserting the battery

Push the battery against the battery holder and slide it until it clicks.

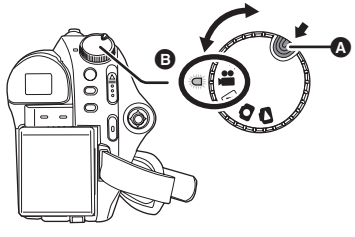


- To remove the battery, while sliding the BATTERY lever, slide the battery down.

■ How to turn on the power

While pressing the lock release button Ⓐ, set the mode dial to , , or .

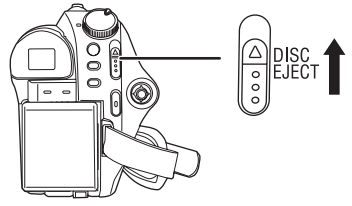
- Align with the status indicator Ⓑ.



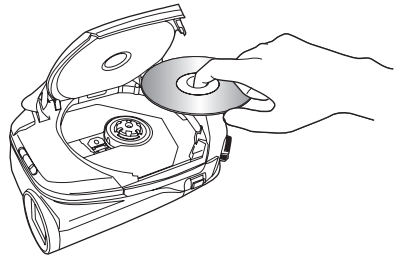
- To turn off the power, set the mode dial to OFF.

■ Inserting a disc

1 Slide the DISC EJECT lever up and release it.



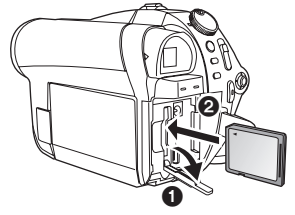
2 Open the cover of the disc compartment and insert the disc.



3 Push the section marked PUSH CLOSE to close the cover.

■ Inserting an SD card

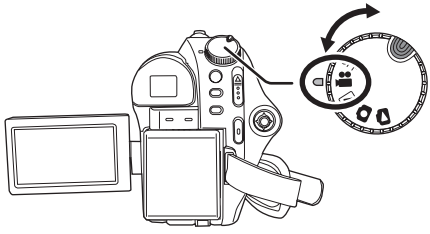
1 Open the SD card slot cover, then insert the SD card.



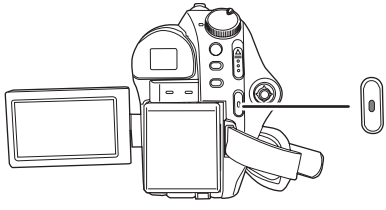
2 Securely close the SD card slot cover.

■ Recording motion pictures

● Rotate the mode dial to select .



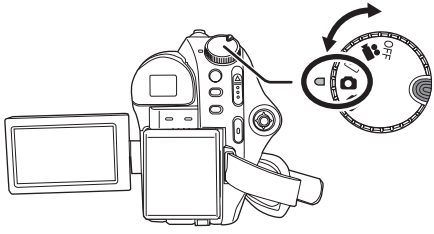
1 Press the recording start/stop button to start recording.



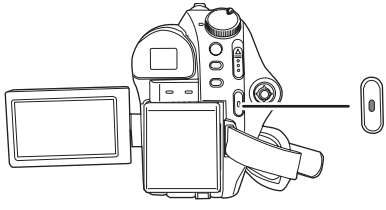
2 Press the recording start/stop button again to pause recording.

■ Recording still pictures

● Rotate the mode dial to select .

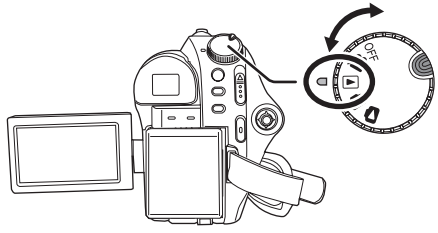


Press the recording start/stop button.



■ Playback

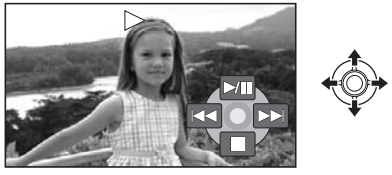
● Rotate the mode dial to select or .



1 Select the scene/file to be played back, then press the joystick.



2 Select the playback operation with the joystick.



Motion picture playback

►/❚❚: Playback/Pause
|◄◄: Skip playback (backward)
►►|: Skip playback (forward)
■: Stops the playback and shows the thumbnails.

Still picture playback

►/❚❚: Slide show start/pause.
◄❚❚: Plays back the previous picture.
❚❚►: Plays back the next picture.
■: Stops the playback and shows the thumbnails.

Preparation

Recording

Playback

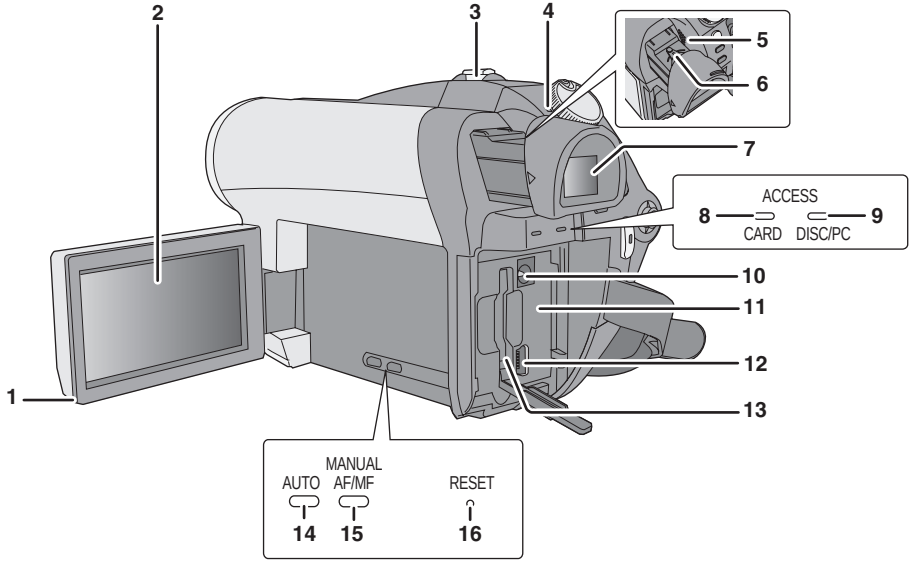
With a PC

Others

14 Before using

28 Setup

Parts identification and handling



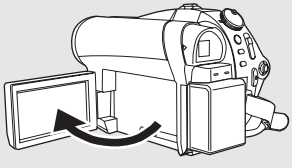
1 LCD monitor open part
2 LCD monitor

Due to limitations in LCD production technology, there may be some tiny bright or dark spots on the LCD monitor screen. However, this is not a malfunction and does not affect the recorded picture.

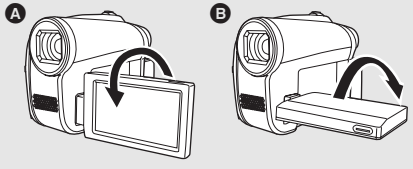
3 When recording: Zoom lever [W/T] (➜ 41)
When playing back: Volume lever [−VOL+] (➜ 55)
4 Status indicator (➜ 28)
5 Speaker
6 Eyepiece corrector knob (➜ 34)

LCD monitor

Pull the LCD monitor out in the direction of the arrow with your fingers.



- It can open up to 90°.



- It can rotate up to 180° Ⓐ towards the lens or 90° Ⓑ towards the viewfinder.

- The brightness and color level of the LCD monitor can be adjusted. (➜ 34)

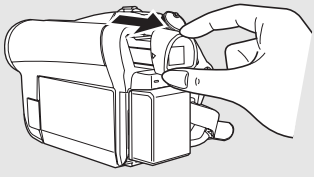
7 Viewfinder

Due to limitations in LCD production technology, there may be some tiny bright or dark spots on the viewfinder screen. However, this is not a malfunction and does not affect the recorded picture.

8 SD card access lamp [ACCESS CARD] (➜ 27)
9 Disc/PC access lamp [ACCESS DISC/PC] (➜ 25, 84)
10 DC input terminal [DC/C.C.IN] (➜ 21)
11 Battery holder (➜ 19)
12 USB terminal [⇜] (➜ 75, 84)
13 SD card slot [SD CARD] (➜ 27)
14 Auto button [AUTO] (➜ 36)
15 Manual button [MANUAL AF/MF] (➜ 49)
16 Reset button [RESET] (➜ 99)

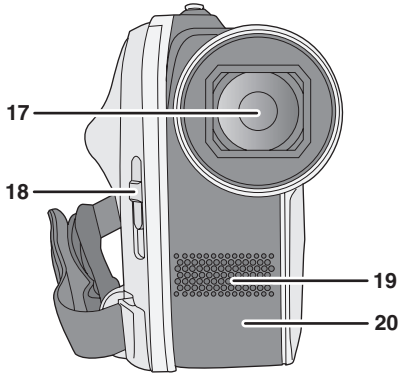
Viewfinder

Pull out the viewfinder.



Close the LCD monitor when using the viewfinder.

- The brightness of the viewfinder and the field of view can be adjusted. (➜ 34)

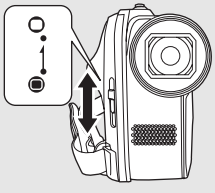


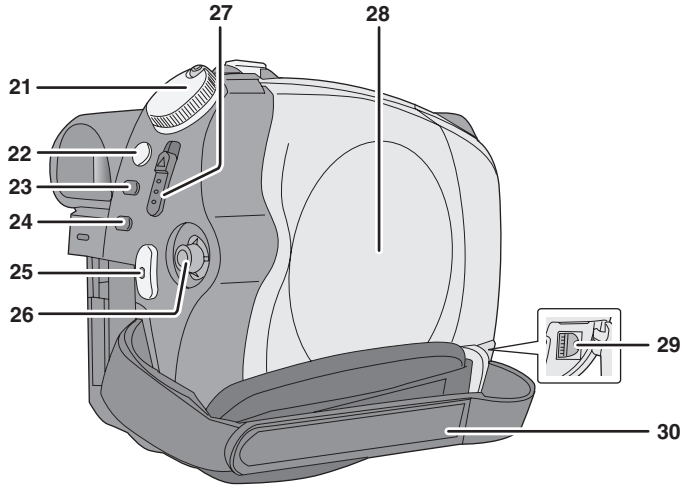
17 Lens
18 Lens cover open/close switch
19 Microphone (built-in, stereo)
20 White balance sensor (➜ 51)

Lens cover

For the lens protection, be sure to close the lens cover when not in use.

Slide the lens cover open/close switch.

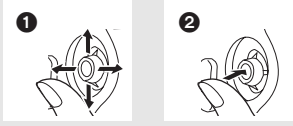




21 Mode dial (➜ 28)
22 Image stabilizer button [(())̈, O.I.S.] (➜ 43)
23 Menu button [MENU] (➜ 30)
24 Delete button [🗑] (➜ 59)
25 Recording start/stop button (➜ 37, 39)
26 Joystick
27 Disc eject lever [DISC EJECT] (➜ 25)
28 Disc compartment (➜ 25)
29 Audio-video output terminal [A/V] (➜ 72, 74)
30 Grip belt

Joystick

Use the joystick to select the recording functions and playback operations, and to operate the menu screen.
Move the joystick up, down, left, or right to select a setting or scene, and then press the joystick to set it.

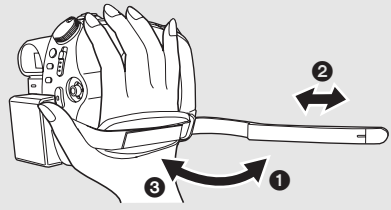


❶ Select by moving up, down, left, or right.
❷ Set by pressing the center.

- Menu screen operations (➜ 30)
- To select the recording functions (➜ 44)
- To adjust manually (➜ 49)
- Playback operations (➜ 54, 57)

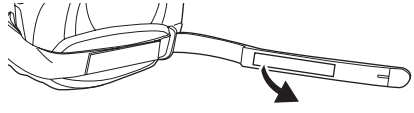
Grip belt

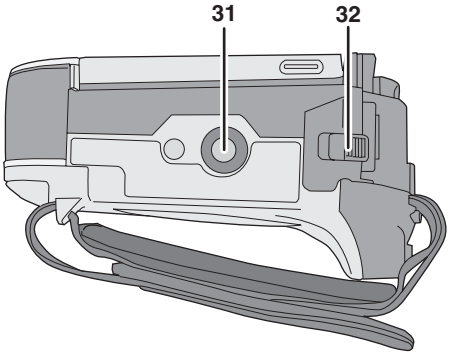
Adjust the belt length and the pad position.



❶ Flip the belt.
❷ Adjust the length.
❸ Replace the belt.

U.S.A. only:
When this unit is purchased, a sensor tag is attached to the grip belt. Remove the tag before use.

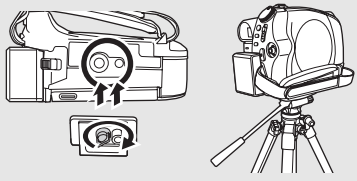




31 Tripod receptacle
32 Battery release lever [BATTERY] (➜ 19)

Tripod receptacle

This is a hole for attaching the unit to the optional tripod.



Power supply

■ About batteries that you can use with this unit

The Panasonic battery that can be used with this unit is supplied battery/VW-VBG130/VW-VBG260/VW-VBG6.

Supplied battery/VW-VBG130/VW-VBG260/VW-VBG6 come with a function to check whether the battery and unit can be safely used together.

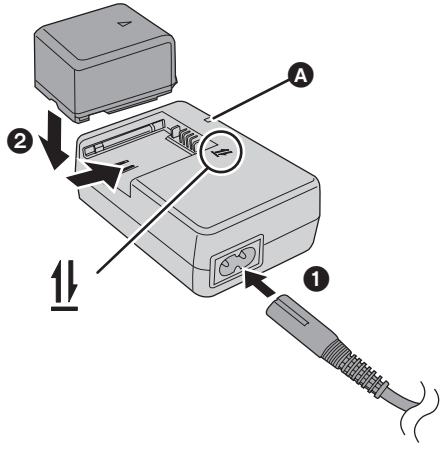
- **The battery pack holder kit VW-VH04 (optional) is necessary if using VW-VBG6.**
- Batteries made by other companies which have been certified by Panasonic may be used with this unit, but we offer no guarantee as to the quality, performance or safety of such batteries.
- In order to safely use the unit we recommend that you use genuine Panasonic batteries which have been subject to our quality control process.
- We cannot accept any liability whatsoever for damages to the unit or accidents caused by non-genuine Panasonic batteries (including those that have been certified by Panasonic).
- Exercise care when purchasing batteries. Many fake or imitation batteries have been found among those sold at unusually low prices and those which customers cannot check for themselves before purchasing.

Charging the battery

When this unit is purchased, the battery is not charged. Charge the battery before using this unit.

Important:

If the DC cable is connected to the AC adaptor, then the battery will not charge. Remove the DC cable from the AC adaptor.



Charging lamp [CHARGE] A

Lights up:

Charging (➜ 19, Charging time)

Goes off:

Charging completed

Flashing:

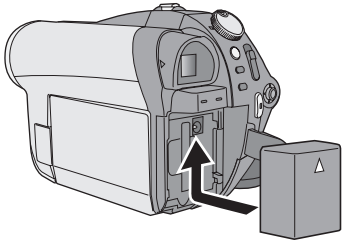
- When the battery temperature is excessively high or low, the lamp flashes and the charging time will be longer than normal.
- Remove dirt, foreign objects or dust on the terminals of the battery or the AC adaptor. If the lamp is still flashing, something may be wrong with the battery or AC adaptor. Contact consumer support. (➜ 113, 114)

1 Connect the AC cable to the AC adaptor and the AC outlet.

2 Insert the battery into the battery charger by aligning the arrows.

- We recommend using Panasonic batteries. (➜ 9, 19, 109)
- If you use other batteries, we cannot guarantee the quality of this product.

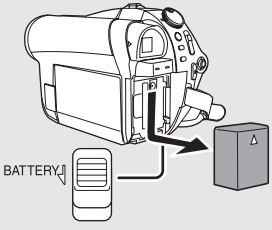
Inserting the battery



Push the battery against the battery holder and slide it until it clicks.

Removing the battery

While sliding the BATTERY lever, slide the battery to remove it.



- Hold the battery with your hand so that it does not fall.

- Before removing the battery, be sure to set the mode dial to OFF and check that the status indicator is off.
- Do not heat or expose to flame.
- Do not leave a battery pack in an automobile exposed to direct sunlight for a long period of time with doors and windows closed.

CAUTION
Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Charging time and recordable time

■ **Charging time**

- Temperature: 25 °C (77 °F)/humidity: 60%

Battery model number	Voltage/capacity	Charging time
Supplied battery	7.2 V/770 mAh	1 h 35 min
VW-VBG130 (optional)	7.2 V/1320 mAh	2 h 35 min
VW-VBG260 (optional)	7.2 V/2640 mAh	4 h 40 min
VW-VBG6 (optional)	7.2 V/5800 mAh	9 h 25 min

- If the temperature is higher or lower than 25 °C (77 °F), the charging time will become longer.

■ **Recordable time**

- Temperature: 25 °C (77 °F)/humidity: 60%
- When using the viewfinder (times in parentheses are when using the LCD monitor)
- When using a DVD-RAM disc

Battery model number	Voltage/ capacity	Recording mode	Maximum continuously recordable time	Actual recordable time
Supplied battery	7.2 V/ 770 mAh	XP	1 h 5 min (1 h)	40 min (35 min)
		SP	1 h 15 min (1 h 10 min)	40 min (40 min)
		LP	1 h 20 min (1 h 15 min)	40 min (40 min)
VW-VBG130 (optional)	7.2 V/ 1320 mAh	XP	1 h 55 min (1 h 45 min)	1 h 10 min (1 h 5 min)
		SP	2 h 10 min (2 h)	1 h 15 min (1 h 5 min)
		LP	2 h 20 min (2 h 5 min)	1 h 15 min (1 h 5 min)
VW-VBG260 (optional)	7.2 V/ 2640 mAh	XP	4 h 5 min (3 h 45 min)	2 h 30 min (2 h 15 min)
		SP	4 h 35 min (4 h 10 min)	2 h 35 min (2 h 25 min)
		LP	4 h 55 min (4 h 30 min)	2 h 40 min (2 h 25 min)
VW-VBG6 (optional)	7.2 V/ 5800 mAh	XP	9 h 25 min (8 h 40 min)	5 h 50 min (5 h 20 min)
		SP	10 h 40 min (9 h 40 min)	6 h 10 min (5 h 35 min)
		LP	11 h 25 min (10 h 20 min)	6 h 15 min (5 h 40 min)

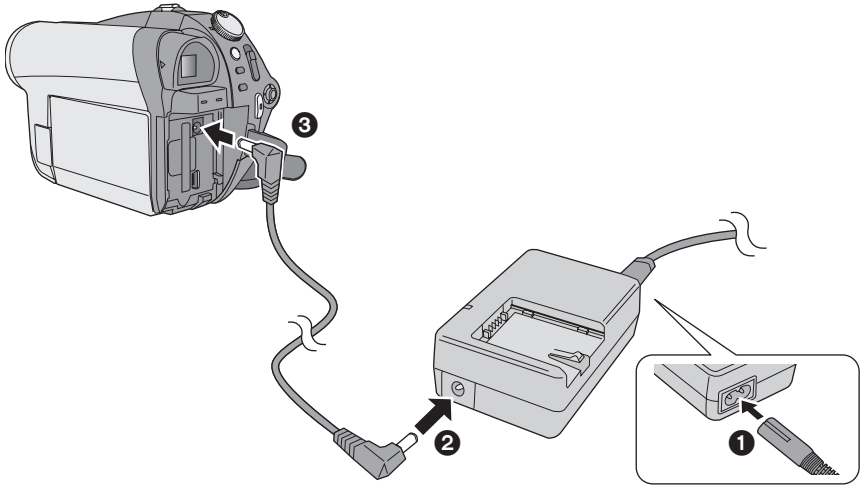
- These times are approximations.
- The actual recordable time refers to the recordable time on a disc when repeatedly starting/stopping recording, turning the unit on/off, moving the zoom lever, etc.
- The recordable times will vary depending on the status of use.
- Be aware that low temperatures will shorten the amount of time the battery will remain charged. We recommend carrying a spare battery.
- The batteries heat up after use or charging. This unit will also heat up while being used. This is not a malfunction.

Battery capacity indication

- The display changes to the following indications step-by-step as the battery capacity decreases.
 → → → →
- If the battery discharges, then () will flash.

Connecting to the AC outlet

Important:
While the DC cable is connected to the AC adaptor, the battery will not charge.



1 Connect the AC cable to the AC adaptor and the AC outlet.

2 Connect the DC cable to the AC adaptor.

3 Connect the DC cable to this unit.

- Do not use the AC cable with any other equipment as it is designed only for this unit. Do not use the AC cable from other equipment with this unit.

About discs

■ Disc type

Disc type	DVD-RAM 8 cm (3″) Single sided/ double sided	DVD-RW 8 cm (3″) Single sided/double sided		DVD-R 8 cm (3″) Single sided/ double sided	DVD-R DL 8 cm (3″) Dual layer on single side
					
Recording format	VR format	VR format	Video format	Video format	Video format
Display on the screen					
Indication in these instructions	RAM	-RW(VR)	-RW(V)	-R	-R DL

About format types

What is the VR format (DVD Video Recording format)?
This is a format for recording on DVD discs which allows you to record and erase repeatedly and create playlists. You can record on DVD-RAM and DVD-RW discs in VR format with this unit.

What is the Video format (DVD-Video format)?
By finalizing the disc, it can be played back on most DVD players.
You can record on DVD-RW and DVD-R/ DVD-R DL discs in Video format with this unit.

■ About DVD-R DL (Dual Layer) disc
DVD-R DL (Dual Layer) discs have two layers of recording/playback surface on one side.
If the first layer (L0) becomes full during recording, the recording continues uninterrupted on the second layer (L1). However, the recording is divided into 2 scenes at the point where the layers switch. This unit automatically switches layers during disc playback so you can play the whole of the disc continuously like a normal disc. However, the picture or the sound momentarily stops at the point where the layers switch.

■ Examples of discs that cannot be used on this unit

- Discs other than those with diameter of 8 cm (3″)
- Double layer discs other than DVD-R DL
- Blu-ray Disc
- HD DVD
- +RW
- +R
- +R DL
- DVD-ROM
- DVD-Video
- CD-RW
- CD-R
- CD-ROM
- CD

■ Disc characteristics

Disc type	DVD-RAM	DVD-RW (VR format)	DVD-RW (Video format)	DVD-R	DVD-R DL
Rewritable disc	●	●	●*1	–	–
Deleting recorded scenes	●	●	–	–	–
Editing on this unit	●	●	–	–	–
Playback on other products*2	●*3	●*3*4	●*4	●*4	●*3*4
Recording after finalizing	●*5	●	●*6	–	–

●: applicable –: not applicable

*1 By formatting the disc, it can be used repeatedly. (➜ 71)
*2 DVD players and DVD recorders that support 8 cm (3″) discs.
*3 Playback is possible on compatible products.
*4 Must be finalized on this unit. (➜ 68)
*5 Does not need to be finalized.
*6 Un-finalize the disc. (➜ 69)

- **Still pictures cannot be recorded on a disc with this unit.**
- You cannot record or play continuously from one side of the disc to the other when using a double sided disc. You will need to eject the disc and turn it over.
- Discs inserted in a holder, cartridge, or caddy case cannot be used unless they are removed from the containers prior to use.
- It is recommended that you use Panasonic discs. Usually discs compatible with the DVD standard can be used for recording and playback with no problems. However, some commercially available discs do not meet the DVD standard for quality and performance. If you use one of these discs, you may not be able to record or playback normally. (The message “RECOMMENDED TO USE PANASONIC DISC” appears.) Refer to the following support site for information about discs that have been confirmed as compatible by Panasonic.
 http://panasonic.jp/support/global/cs/e_cam
 (This website is in English only.)
- **Discs recorded on this unit may not be playable on other products.**
- Recording on a DVD-R/DVD-R DL disc in VR format is not supported.
- **When using DVD-RW or DVD-R/DVD-R DL discs, do not perform the following as it may make the disc unusable.**
 – Record on a disc with other products after recording on it with this unit.
 – Record on a disc with this unit after recording on it with other products.
 – Insert a disc that has not been finalized into other products.

When using a new DVD-RW disc

When using a DVD-RW disc, select whether to record in VR format or Video format and then format the disc. (➜ 22, About format types)
When a new DVD-RW disc is used, the screen shown in the illustration appears.

1 Select [YES], then press the joystick.



2 Select format type, then press the joystick.



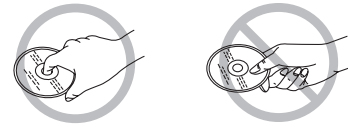
[VIDEO]:
Video format (Cannot edit or delete scenes)
[VR]:
VR format (Allows editing and deleting of scenes)

3 When the confirmation message appears Select [YES], then press the joystick.

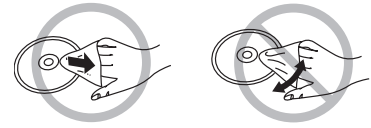
- If the disc is formatted, then all the data recorded on the disc will be erased.
- To change the format type, format the disc again. (➜ 71)

Disc handling

- Do not touch the recording/playback surface.



- If there are scratches, dirt or fingerprints on the recording/playback side of the disc, images cannot be recorded or played back normally and the following phenomena may occur:
 - Recording or playback becomes impossible.
 - Playback image stops momentarily or sound is interrupted during playback.
 - Block noise appears on playback images.
- If there is dirt on the disc, wipe with a damp cloth and then wipe dry.



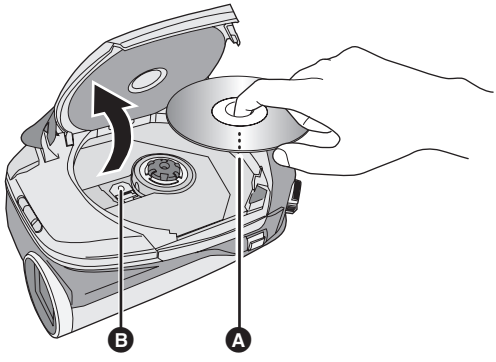
- Do not attach labels or stickers to discs.
- Do not use ballpoint pens or other hard writing implements to write on a label. Use a soft fiber pen with solvent ink.
- Do not use solvents to clean the disc.
- Do not drop, stack, or impact discs. Do not place objects on them.
- Do not use the following discs:
 - Discs that are badly warped or cracked.
 - Irregularly shaped discs, such as heart shapes.



- Do not leave discs in the following areas.
 - In direct sunlight.
 - In very dusty or humid areas.
 - Near a heater.
 - Locations susceptible to significant difference in temperature (condensation can occur).
- To protect discs, keep them in their cases when not being used.

Inserting/removing a disc

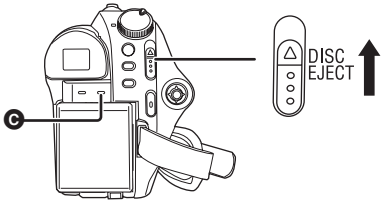
- The cover of the disc compartment will not open unless the unit has a charged battery or is connected to the AC adaptor.



Ⓐ Set the recording/playback side to the inside.
Ⓑ Pickup lens (reads disc)

1 Insert a charged battery or connect the AC adaptor.

2 Slide the DISC EJECT lever up and release it.



3 Open the cover of the disc compartment and insert/remove the disc.

- Place the disc onto the spindle in the center and then push the disc down until it clicks into place.
- While pressing down on the spindle, grasp the edge of the disc and gently lift it out.

4 Push the section marked PUSH CLOSE to close the cover.

- Do not remove the battery pack or disconnect the AC adaptor while removing the disc.
- If the cover is open, the power will not turn off even if the mode dial is set to OFF.
- Do not touch the pickup lens or the recording/playback side of the disc.
- Be sure not to touch the area around the pickup lens for it becomes extremely hot.

Disc access lamp [ACCESS DISC/PC] Ⓒ

When the lamp is on, the disc is rotating and data is being recorded. If the power supply is interrupted, the disc may become damaged. Do not disconnect the AC adaptor or remove the battery. Also, do not shake or bump the unit while the lamp is on.

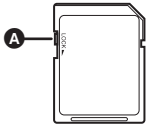
About SD cards

Card type	SD Memory Card	SDHC Memory Card
Capacity	8 MB, 16 MB, 32 MB, 64 MB, 128 MB, 256 MB, 512 MB, 1 GB, 2 GB	4 GB, 8 GB
Indication in these instructions	SD	

This unit is compatible with both SD Memory cards and SDHC Memory cards. You can only use SDHC Memory cards on devices that are compatible with them. You cannot use SDHC Memory cards on devices that are only compatible with SD Memory cards. (When using an SDHC Memory card on another device, be sure to read the operating instructions for that device.)

- For the purposes of these operating instructions, SD Memory Card and SDHC Memory Card are referred to as the “SD card”.
- **Motion pictures cannot be recorded on an SD card with this unit.**
- Please confirm the latest information on the following website. (This website is in English only.)
 http://panasonic.jp/support/global/cs/e_cam
- This unit supports SD Memory Cards formatted in FAT12 system and FAT16 system based on SD Memory Card Specifications and SDHC Memory Cards formatted in FAT32 system.
- If you wish to use Memory Cards that are 4 GB and 8 GB, only SDHC Memory Cards can be used.
- 4 GB (or more) Memory Cards that do not have the SDHC logo are not based on SD Memory Card Specifications.
- Use this unit to format SD cards. If an SD card is formatted on other products (such as a PC), the time spent for recording may become longer and you may not be able to use the SD card. (➜ 71)
- We recommend that you use a Panasonic brand SD card.

- When the write-protect switch Ⓐ on SD card is locked, no recording, deletion or editing will be possible on the card.
- Keep the Memory Card out of reach of children to prevent swallowing.



- A MultiMediaCard cannot be used on this unit.

■ **About the miniSD Card**

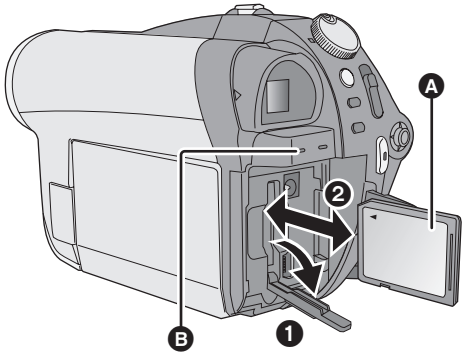
- Be sure to insert miniSD Cards in the dedicated card adaptor before use. Inserting a card in this unit without the adaptor may damage the unit or the card.
- Do not insert an empty card adaptor in this unit. Do not leave the adaptor in this unit while inserting or removing miniSD Cards. This may cause the unit to malfunction.

SD card handling

- Do not touch the terminals on the back of the SD card.
- Do not expose the terminals of the SD card to water, debris, dirt or dust.
- Do not leave the SD cards in the following areas:
 - In direct sunlight.
 - In very dusty or humid areas.
 - Near a heater.
 - Locations susceptible to significant difference in temperature (condensation can occur).
 - Where static electricity or electromagnetic waves occur.
- To protect SD cards, keep them in their cases when not being used.
- Electrical noise, static electricity or failure of this unit or the SD card may damage or erase the data stored on the SD card. We recommend saving the SD data on a PC.

6 Inserting/removing an SD card

Caution:
If the SD card is inserted or removed while the power is on, this unit may malfunction or the data recorded on the SD card may be lost.



Ⓐ Label side

1 Set the mode dial to OFF and remove the battery.

- Check that the status indicator has gone off.

2 Open the SD card slot cover.

3 Insert/remove the SD card.

- Press the SD card straight in as far as it will go.
- Press the center of the SD card and then pull it straight out.

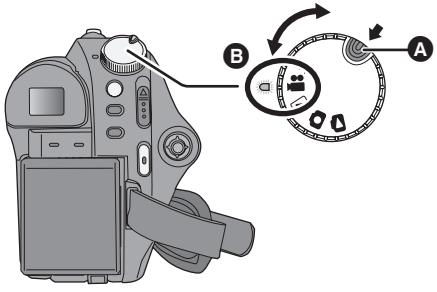
4 Securely close the SD card slot cover.

SD card access lamp [ACCESS CARD] Ⓑ

- When this unit is processing data, the lamp lights up.
- **When lamp is on, do not:**
 - **−Remove the SD card**
 - **−Operate the mode dial**
 - **−Remove the battery or disconnect the AC adaptor**
- Performing the above while lamp is on may result in damage to data/SD card or this unit.

1 Turning the unit on/off Selecting a mode

Rotate the mode dial to switch to recording, playback or power OFF.



- Rotate the mode dial while at the same time pressing in the lock release button Ⓐ if changing from OFF to another mode.
- Align with the status indicator Ⓑ.

While pressing the lock release button, set the mode dial to 🎥, ▶, 📷 or 📷 to turn on the power.

The status indicator lights and the power turns on.

- When the unit is turned on for the first time, a message asking you to set the date and time will appear. Select [YES] and set the date and time. (➜ 33)

To turn off the power

Set the mode dial to OFF.

- The status indicator goes off and the power turns off.

🎥	**Video recording mode (➜ 37)**
▶	**Video playback mode (➜ 54)**
📷	**Picture recording mode (➜ 39)**
📷	**Picture playback mode (➜ 57)**
OFF	

To start recording immediately

Use the following steps to make the unit recognize the disc.

1) Insert a disc.
2) Turn on the power.
3) After “READING DISC...” disappears from the screen, turn off the power.

You can start recording immediately when you turn on the power again.

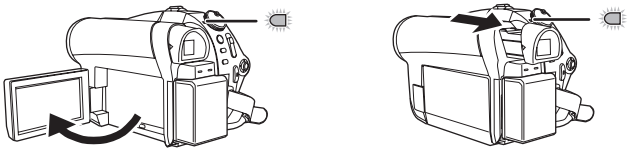
- Set the date and time to use this function.

How to turn the power on and off with the LCD monitor/viewfinder

When the mode dial is set to or , the power can be turned on and off with the LCD monitor and the viewfinder.

■ To turn on

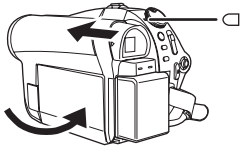
Open the LCD monitor or extend the viewfinder.



The status indicator lights.

■ To turn off

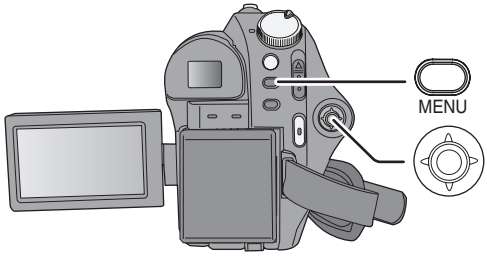
Close the LCD monitor and retract the viewfinder.



The status indicator goes off.

Set the mode dial to OFF when this unit is not being used.

2 Using the menu screen



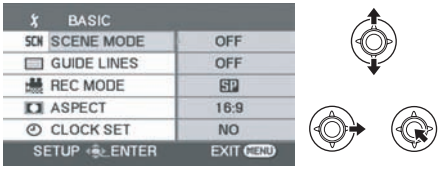
1 Press the MENU button.

The menu displayed differs depending on the position of the mode dial.

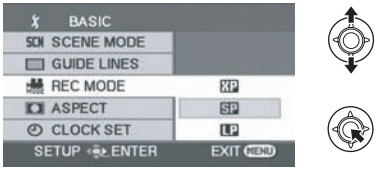
2 Select the desired top menu, then move the joystick right or press the joystick.



3 Select the submenu item, then move the joystick right or press the joystick.



4 Select the desired setting, then press the joystick to enter the selection.



To get back to the previous screen

Move the joystick left.

To exit the menu screen

Press the MENU button.

- Do not switch the mode dial when the menu is displayed.
- The menu screen does not appear during recording or playing. You cannot start other operations while the menu screen is displayed.

Language selection

You can select the language displayed on the screen.

1 **Press the MENU button, then select [LANGUAGE] and press the joystick.**

2 **Select [English] and press the joystick.**

Menu list

🎥 Motion picture recording menus

■ **[BASIC]**

[SCENE MODE] (➜ 50)
[GUIDE LINES] (➜ 48)
[REC MODE] (➜ 38)
[ASPECT] (➜ 48)
[CLOCK SET] (➜ 33)

■ **[ADVANCED]**

[D.ZOOM] (➜ 42)
[FADE COLOR] (➜ 46)
[WIND CUT] (➜ 48)
[ZOOM MIC] (➜ 42)
[AUTO SLW SHTR] (➜ 48)

■ **[DISC SETUP]**

[FORMAT DISC] (➜ 71)
[INFORMATION] (➜ 70)

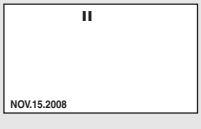
■ **[SETUP]**

[DISPLAY]

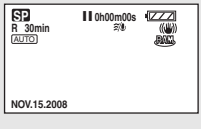
● [OFF] ● [ON]

The screen indications are selected as shown in the illustration below.

[OFF]



[ON]



[DATE/TIME] (➜ 33)
[DATE FORMAT] (➜ 33)

[POWER SAVE]

● [OFF] ● [5 MINUTES]

[OFF]:
The power saving function is not activated.
[5 MINUTES]:
When about 5 minutes have passed without any operation, this unit automatically turns off to save battery life. To use this unit, turn it on again.
● When using the AC adaptor, connecting the unit to a PC or a printer via the USB cable, the power saving function will not activate.

[BEEP SOUND]

● [OFF] ● [ON]

This allows operations such as starting and ending recording to be signaled by a beep.
1 Beep
When you start recording
When you turn on the power
When this unit is recognized by the PC or the printer, etc.
2 Beeps
When you pause recording
When you turn off the power
2 Beeps for 4 times
When an error occurs e.g. recording not starting. Check the sentence displayed on the screen. (➜ 92)

[LCD SET] (➜ 34)
[EVF SET] (➜ 34)

[INITIAL SET]

● [YES] ● [NO]

When there is a menu that cannot be selected due to another function or mode being activated, set to [YES] for changing the menu settings back to the default condition.
(The language setting cannot be changed back to the default condition.)

[DEMO MODE]

● [OFF] ● [ON]

This is used to start the unit demonstration. (Only when using the AC adaptor and the mode dial is at the or position)
If you set this to [ON] without inserting a disc or an SD card, this unit is automatically set to the demonstration mode for introducing its functions. If any button is pressed or operated, the demonstration mode is canceled. If no operations take place for approx. 10 minutes, the demonstration mode automatically starts. To terminate the demonstration mode, set this to [OFF]. For normal use, set this function to [OFF].

■ **[LANGUAGE] (➜ 31)**

Still picture recording menus

■ **[BASIC]**

[SCENE MODE] (➜ 50)
[GUIDE LINES] (➜ 48)
[PICTURE SIZE] (➜ 40)
[PICT.QUALITY] (➜ 40)
[CLOCK SET] (➜ 33)

■ **[ADVANCED]**

[SHTR EFFECT] (➜ 40)
[AUTO SLW SHTR] (➜ 48)

■ **[SETUP]**

[FORMAT CARD] (➜ 71)
For other items, refer to the motion picture recording menus.

■ **[LANGUAGE] (➜ 31)**

Motion picture playback menus

■ **[EDIT SCENE]**

[DIVIDE] (➜ 61)
[COMBINE] (➜ 62)
[DELETE] (➜ 59)

(In playlist playback mode)

■ **[EDIT]**

[ADD] (➜ 64)
[MOVE] (➜ 65)
[DIVIDE] (➜ 65)
[COMBINE] (➜ 65)
[DELETE] (➜ 59, 64)

■ **[DISC SETUP]**

[FINALIZE] (➜ 68)
[UN-FINALIZE] (➜ 69)
[DISC PROTECT] (➜ 70)
[FORMAT DISC] (➜ 71)
[INFORMATION] (➜ 70)

■ **[SETUP]**

[RESUME PLAY] (➜ 56)
[TV ASPECT] (➜ 72)
For other items, refer to the motion picture recording menus.

■ **[LANGUAGE] (➜ 31)**

Still picture playback menus

■ **[PICT. SETUP]**

[LOCK SET] (➜ 66)
[DPOF SET] (➜ 67)
[DELETE] (➜ 59)

■ **[SETUP]**

[FORMAT CARD] (➜ 71)
[TV ASPECT] (➜ 72)
For other items, refer to the motion picture recording menus.

■ **[LANGUAGE] (➜ 31)**

3 Setting date and time

When the unit is turned on for the first time, a message asking you to set the date and time will appear. Select [YES] and press the joystick. Perform steps 2 and 3 below to set the date and time.

◇**Rotate the mode dial to select or .**

1 Select the menu. (➜ 30)

[BASIC] → [CLOCK SET] → [YES]

2 Select the date or time to be set, then set the desired value with the joystick.



- The year will change as follows: 2000, 2001, ..., 2099, 2000, ...
- The 12-hour system is used to display the time.

3 Press the joystick to enter the selection.

- The clock function starts at [00] seconds when the joystick is pressed.

4 Press the MENU button to finish the setting.

- Check the date and time displayed.

■ Changing the date and time display mode

Select the menu. (➜ 30)
[SETUP] → [DATE/TIME] → desired display style

[DATE]

NOV.15.2008

[D/T]

NOV.15.2008 12:34 PM

[OFF]

■ Changing the date format

Select the menu. (➜ 30)
[SETUP] → [DATE FORMAT] → desired display style

Display style	Screen display
[Y/M/D]	2008.NOV.15
[M/D/Y]	NOV.15.2008
[D/M/Y]	15.NOV.2008

- The date and time function are driven by a built-in lithium battery.
- If the time display becomes [- -], the built-in lithium battery needs to be charged. Use the following steps to charge the battery. Complete the following steps to charge the battery and then set the date and time.

 To recharge the built-in lithium battery

 Connect the AC adaptor or attach the battery to the unit, and the built-in lithium battery will be recharged. Leave the unit as it is for approx. 24 hours and the battery will save the date and time for approx. 6 months. (Even if the mode dial is set to OFF, the battery is still being recharged.)

4 Adjusting LCD monitor/ viewfinder

● These settings will not affect the images actually recorded.

Adjusting the brightness and color level

1 Select the menu. (➜ 30)

[SETUP] → [LCD SET] or [EVF SET] → [YES]

2 Select the item and then adjust the settings with the joystick.



■ **[LCD SET]**

[BRIGHTNESS]:
Brightness of the LCD monitor

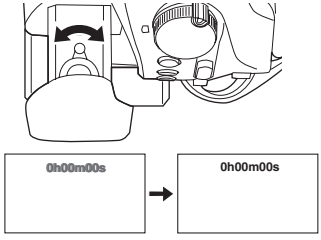
[COLOR]:
Color level of the LCD monitor

■ **[EVF SET]**

● To adjust the brightness of the viewfinder, extend the viewfinder and close the LCD monitor to activate the viewfinder.

[BRIGHTNESS]:
Brightness of the viewfinder

Adjusting the viewfinder field of view



Adjust the focus by sliding the eyepiece corrector knob.

Recording

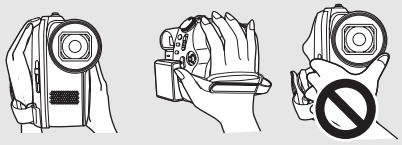
36 Recording (Basic)
44 Recording (Advanced)

Before recording

Basic camera positioning



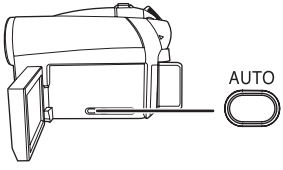
❶ Hold the camera with both hands.
Put your hand through the grip belt.
Do not cover the microphones or sensor with your hands.



❷ Keep your arms near your body.
❸ Separate your legs for better balance.

- When you are outdoors, record pictures with the sunlight behind you. If the subject is backlit, it will become dark in the recording.
- When recording, make sure your footing is stable and there is no danger of colliding with another person or an object.

■ About auto mode



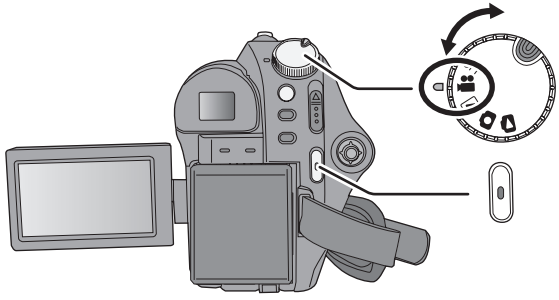
Press the AUTO button, color balance (white balance) and focusing will be adjusted automatically.
(The auto mode icon [AUTO] appears.)
– Auto white balance (➜ 104)
– Auto focusing (➜ 104)
Depending on the brightness of the subject etc., the aperture and shutter speed are automatically adjusted for optimum brightness.
(When set to the video recording mode: The shutter speed is adjusted to a maximum of 1/250.)

- Color balance and focus may not be adjusted automatically depending on light sources or scenes. If so, manually adjust these settings. (➜ 49)

2 Recording motion pictures

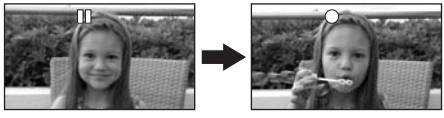
RAM -RW(VR) -RW(V) -R -R DL

- Open the lens cover before turning the unit on.



1 Rotate the mode dial to select 🎥 and open the LCD monitor or extend the viewfinder.

2 Press the recording start/stop button to start recording.



To end the recording

Press the recording start/stop button again.

- [●] and [❚❚] are red during recording. Do not move this unit until [❚❚] is green.

- The images recorded between pressing the recording start/stop button to start recording and pressing it again to pause recording become one scene.
- When about 5 minutes have passed without any operation in recording pause, this unit automatically turns off to save battery life. To use this unit, turn it on again.
 This power save feature can also be set to [OFF]. (➜ 31, [POWER SAVE])

■ Screen indications



Ⓐ Recording mode

Ⓑ Remaining time left for recording
When the remaining time is less than 1 minute, [R 0min] flashes red.

Ⓒ Recording time elapsed
Each time the unit enters the recording pause mode, the counter display will be reset to “0h00m00s”.

- Maximum number of scenes on one side of a disc: 999
 Maximum number of dates on one side of a disc: 99
 (In some cases, scenes shot on the same day will be recorded with different dates (➜ 56))
 When either of them reaches to the maximum limit, more scenes cannot be recorded.
- While motion picture recording is in progress, the recording will not stop even if the LCD monitor is closed and the viewfinder is retracted.

- While motion picture recording is in progress, do not disconnect the AC adaptor or remove the battery. If you do, a repair disc message may be displayed when the power is turned back on. (➜ 93, About recovery)

While "WRITING CONTROL DATA TO THE DISC. DO NOT SHAKE THE UNIT." is displayed, or while the ACCESS DISC/PC lamp lights, the disc is rotating and disc information is being recorded. If you shake the unit, the recorded images may be distorted, so do not strongly shake or strike the camera. Also, do not disconnect the AC adaptor or remove the battery as doing so may make the disc unusable.

Recording modes and recordable time

To change the picture quality of the motion picture

Select the menu. (➜ 30)

[BASIC] → [REC MODE] → desired setting

■ **Approximate recordable time for one side of a disc**

Recording mode	Disc type	
	DVD-RAM	DVD-R DL
XP (High quality)	18 min	35 min
SP (Normal)	37 min	69 min
LP (Long play)	75 min	138 min

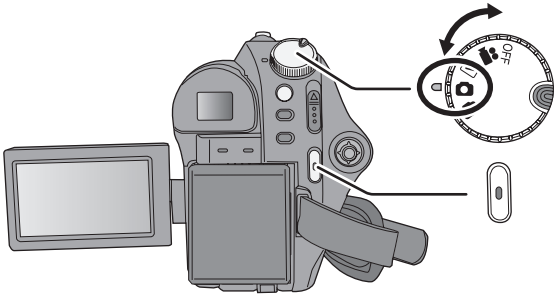
- This unit records in VBR (Variable Bit Rate). VBR recording automatically varies the bit rate (amount of data in a fixed time) depending on the subject being recorded. This means if a recording with a lot movements is recorded, the recording time is reduced.

- Mosaic-pattern noise may appear on a playback image in the following cases.
 - When there is a complicated pattern in the background
 - When the unit is moved too fast
 - When a subject with sharp movements has been recorded
 (Particularly if it has been recorded in [LP] mode.)

3 Recording still pictures on an SD card

SD

- Open the lens cover before turning the unit on.



1 Rotate the mode dial to select and open the LCD monitor or extend the viewfinder.

2 Press the recording start/stop button.

The unit automatically focuses on the subject at the center of screen (when auto focus is selected).

- About the number of recordable still pictures on an SD card (➜ 108)

■ Screen indications



A Remaining number of still pictures
Flashes in red when [R 0] appears.
B Size of still pictures
C Quality of still pictures

■ To record still pictures clearly

- When zooming in on the subject with a magnification of 4× or higher, it is difficult to reduce the slight shaking from holding this unit by hand. We recommend decreasing the zoom magnification and approaching the subject when recording.
- When recording still pictures, hold the unit firmly with your hands and keep your arms stationary at your side so as not to shake the unit.
- You can record stable pictures without shaking by using a tripod.

Recording with a shutter sound effect

Select the menu. (➜ 30)

[ADVANCED] → [SHTR EFFECT] → [ON]

- This function's default setting is [ON].

Number of pixels and picture quality

■ [PICTURE SIZE]

Select the menu. (➜ 30)

[BASIC] → [PICTURE SIZE] → desired setting

Icon	Aspect	Number of pixels
0.3M	4:3	640×480
0.2M	16:9	640×360

- Default [PICTURE SIZE] is set to [0.2M]. The sides of pictures recorded with a 16:9 aspect ratio may be cut at printing. Check before printing.

■ [PICT.QUALITY]

Select the menu. (➜ 30)

[BASIC] → [PICT.QUALITY] → desired setting

: Still pictures with a high picture quality are recorded.

: Priority is given to the number of still pictures recorded. Still pictures are recorded in normal picture quality.

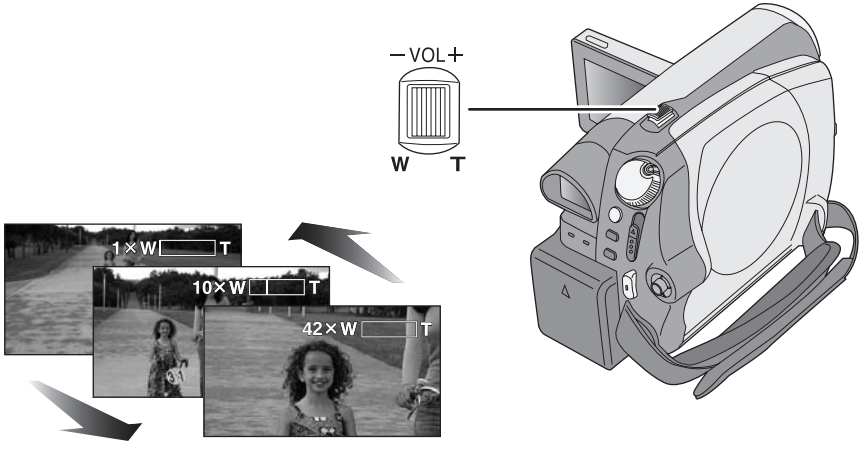
- If the [PICT.QUALITY] is set to [], mosaic-pattern noise may appear on a playback image depending on the picture content.

Recording functions

Zoom in/out function

RAM -RW(VR) -RW(V) -R -R DL SD

You can zoom in up to 42× optically.



◇**Rotate the mode dial to select 🎥 or 📷.**

Move the zoom lever.

T side:
Close-up recording (zoom in)

W side:
Wide-angle recording (zoom out)

- The zoom speed varies depending on the range over which the zoom lever is moved.

- If you take your finger off the zoom lever during zoom operation, the operation sound may be recorded. When returning the zoom lever to the original position, move it quietly.
- When distant subjects are brought closer, they are focused at about 1.3 m (4.3 feet) or more.
- When the zoom magnification is 1×, this unit can focus on a subject approx. 2 cm (0.8″) away from the lens. (Macro function)
- When the zoom speed is high, the subject may not be focused easily.

Digital zoom function

RAM -RW(VR) -RW(V) -R -R DL

If the zoom magnification exceeds 42×, then the digital zoom function will be activated. The maximum magnification provided by the digital zoom can be selected.

◇Rotate the mode dial to select .

Select the menu. (➜ 30)

[ADVANCED] → [D.ZOOM] → desired setting

[OFF]:
Optical zoom only (Up to 42×)
[70x]:
Up to 70×
[2000x]:
Up to 2000×

- If [70x] or [2000x] is selected, the digital zoom range is displayed in blue while zooming.

- The larger the digital zoom magnification, the more the image quality is degraded.
- This function cannot be used in picture recording mode.

To use the zoom microphone function

RAM -RW(VR) -RW(V) -R -R DL

The zoom microphone is linked to the zooming operation so that far-away sounds with a tele-shot and close-up sounds with a wide-angle shot are recorded more clearly.

◇Rotate the mode dial to select .

Select the menu. (➜ 30)

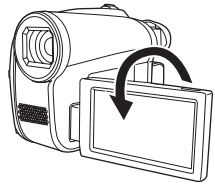
[ADVANCED] → [ZOOM MIC] → [ON]

Recording yourself

RAM -RW(VR) -RW(V) -R -R DL SD

◇Rotate the mode dial to select or .

Rotate the LCD monitor towards the lens side.



If the viewfinder is extended, the LCD monitor and the viewfinder simultaneously light.

- The image is horizontally flipped as if you see a mirror image. (However the image recorded is the same as a normal recording.)
- When the recording aspect is 16:9, the image displayed on the viewfinder screen is squeezed horizontally, but this is normal and not a sign of any malfunction.

- When the LCD monitor is rotated towards the lens side, the icon will not be displayed even if you press the joystick.
- Only some indications will appear on the screen. When [!] appears, return the direction of the LCD monitor to normal position and check the warning/alarm indication. (➜ 92)

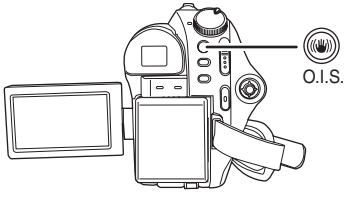
Image stabilizer function

RAM -RW(VR) -RW(V) -R -R DL SD

Reduces the image shaking (jitter) due to hand movement when recording.

◇**Rotate the mode dial to select or .**

Press the O.I.S. button.



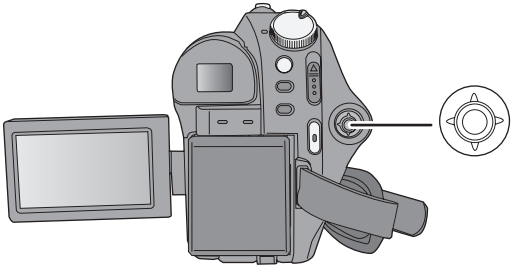
The image stabilizer icon [] appears.

To cancel the image stabilizer function
Press the O.I.S. button again.

- The default setting is on.
- In the following cases, the image stabilizer function may not work effectively.
 - When the digital zoom is used
 - When the unit is shaken greatly
 - When you record a moving subject while tracking it

1 Recording functions of operation icons

Set the recording functions by selecting the operation icons to add different effects to the recorded images.



◇**Rotate the mode dial to select 🎥 or 📷.**

1 **Press the joystick, and icons will be displayed on the screen.**



- The indication changes each time the joystick is moved down.
- The indication disappears when the center of the joystick is pressed again.

2 **Select an icon with the joystick.**



To cancel the function
Select the icon again.

Operation icons
Backlight compensation/Fade/Help mode/MagicPix/Soft skin mode/Self-timer

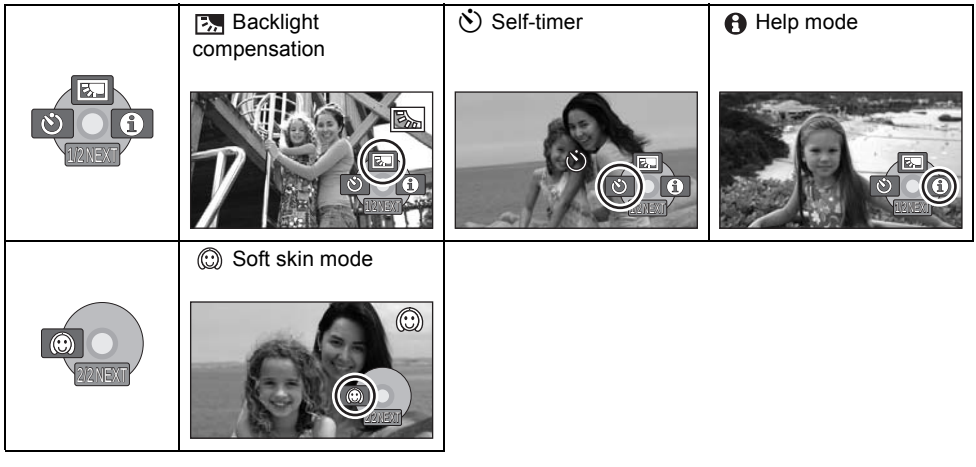
Video recording mode



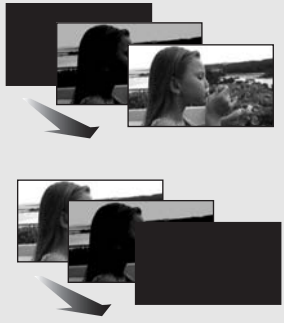
- The shaded operation icons are not displayed while recording.

- If you turn off the power or operate the mode dial, the backlight compensation and the MagicPix functions are canceled.
- If you turn off the power, the fade function is canceled.

Picture recording mode



- If you turn off the power or operate the mode dial, the backlight compensation function is canceled.
- If you turn off the power, the self-timer function is canceled.

Function		Effect
Backlight compensation	RAM -RW(VR) -RW(V) -R -R DL SD	**This makes the image brighter to prevent darkening of a backlit subject.**
Fade 	RAM -RW(VR) -RW(V) -R -R DL	**When you start recording, the image/audio gradually appears. (Fade in)** **When you pause recording, the image/audio gradually disappears. (Fade out)** ● After the image/audio completely disappears, the recording stops and the fade setting is canceled. ■ **To select the color for fade in/out** **Select the menu. (➜ 30)** **[ADVANCED] → [FADE COLOR] → [WHITE] or [BLACK]**
Help mode 	RAM -RW(VR) -RW(V) -R -R DL SD	**This explains the recording functions. (Only for icons that can be selected in auto mode)** **Select the desired icon with the joystick to display an explanation on the screen.** ***To exit the help mode*** Press the MENU button or select [EXIT].
MagicPix	RAM -RW(VR) -RW(V) -R -R DL	**This allows you to record color subjects in dark locations to stand out against the background.** ● Minimum required illumination: approx. 2 lx ● Attach this unit to a tripod, and you can record images free from vibration. ● If it is difficult to focus, adjust the focus manually. (➜ 50)
Soft skin mode	RAM -RW(VR) -RW(V) -R -R DL SD	**This makes skin colors appear softer for a more attractive appearance.** This is more effective if you record a person closely from the torso up.

Function		Effect
Self-timer	SD	**This is for recording still pictures using the timer. Use this function to include yourself in the picture.** **Press the recording start/stop button, the [⏲] indication blinks for about 10 seconds and then the still picture is recorded.** ● After recording, the self-timer is canceled. ***To stop the timer midway through*** Press the MENU button. (The self-timer setting is canceled.)

Fade:
- The thumbnails of scenes recorded using fade in become black (or white).

Help mode:
- When the help mode is used, functions cannot be set.
- When the help mode is used, motion pictures and still pictures cannot be recorded.

MagicPix:
- Recorded scene is seen as if frames were missed.
- The MagicPix function makes the signal charging time of CCD up to approximately 30× longer than usual, so that dark scenes can be recorded brightly. For this reason, bright dots that are usually invisible may be seen, but this is not a malfunction.
- If set in a bright place, the screen may become washed out for a while.

Soft skin mode:
- If the background or anything else in the scene has colors similar to the skin color, they will also be smoothed.
- If the brightness is insufficient, the effect may not be clear.
- You may not be able to see the face clearly when recording a distant person. In this case, cancel soft skin mode or zoom in on the face.

2 Recording functions of menus

Menus
Guideline/Aspect ratio/Wind noise reduction/Auto slow shutter

◇Rotate the mode dial to select or .

Function		Effect/Setting method
Guideline function	RAM -RW(VR) -RW(V) -R -R DL SD	**You can check if the image is level while recording by using the guidelines displayed on the screen.** **Select the menu. (➜ 30)** **[BASIC] → [GUIDE LINES] → [ON]** ● To cancel the function, select [OFF].
Aspect ratio	RAM -RW(VR) -RW(V) -R -R DL	**This allows you to record images compatible with wide-screen TVs (16:9) and regular TVs (4:3).** **Select the menu. (➜ 30)** **[BASIC] → [ASPECT] → [16:9] or [4:3]** ● The default setting is [16:9].
Wind noise reduction function	RAM -RW(VR) -RW(V) -R -R DL	**This reduces the winding noise picked up by the microphone.** **Select the menu. (➜ 30)** **[ADVANCED] → [WIND CUT] → [ON]** ● The default setting is [ON]. ● To cancel the function, select [OFF].
Auto slow shutter mode	RAM -RW(VR) -RW(V) -R -R DL SD	**You can record bright pictures even in dark places by slowing the shutter speed.** **Select the menu. (➜ 30)** **[ADVANCED] → [AUTO SLW SHTR] → [ON]** ● The default setting is [ON]. ● To cancel the function, select [OFF].

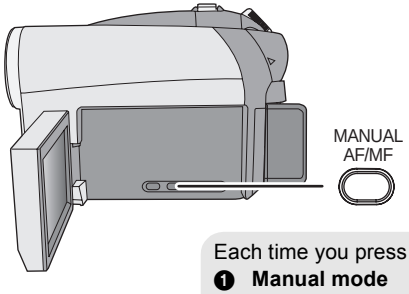
Guideline function:
- The guidelines do not appear on the images actually recorded.
- The guidelines are not displayed while rotating the LCD monitor frontward to record yourself.

Wind noise reduction function:
- The wind noise reduction depends on the wind strength. (If this function is activated in strong winds, the stereo effect may be reduced. When the wind weakens, the stereo effect will be restored.)

Auto slow shutter mode:
- When the auto slow shutter mode is selected, the slowest shutter speed changes from 1/60 to 1/30.
- When the shutter speed becomes 1/30, the screen display may be seen as if frames are missed and afterimages may appear.
- If the scene is low in brightness or contrast, the subject may not be focused in on.

Manual recording functions

RAM -RW(VR) -RW(V) -R -R DL SD



❶



❷



Each time you press the MANUAL AF/MF button:

❶ Manual mode

The icon shown in the illustration appears.



WB White balance

IRIS Aperture adjustment

SHTR Shutter speed

❷ Manual focus mode

The manual focus indication [MF] and the icon shown in the illustration appear.



MF MF Manual focus adjustment

◇**Rotate the mode dial to select or .**

Press the MANUAL AF/MF button.

Scene mode

When you record images in different situations, this mode automatically sets optimum shutter speeds and apertures.

1 Select the manual mode. (➜ 49)

2 Select the menu. (➜ 30)

[BASIC] → [SCENE MODE] → desired setting

Icon	Mode/Recording conditions
	Sports To record sports scenes or scenes where there are quick motions
	Portrait To make people stand out against the background
	Low light To make the scene brighter in dark conditions
	Spotlight To make the subject under a spotlight look more attractive
	Surf & snow To record images in bright places such as ski slopes and beaches

To cancel the scene mode function

Set [SCENE MODE] to [OFF].

- You can also cancel the scene mode function by pressing the AUTO button.

Sports mode

- For slow-motion playback or playback pause of recorded pictures, this mode helps diminish camera shake.
- During normal playback, the image movement may not look smooth.
- Avoid recording under fluorescent light, mercury light or sodium light because the color and brightness of the playback image may change.
- If you record a subject illuminated with bright light or a highly reflective subject, vertical lines of light may appear.
- If the brightness is insufficient, the sports mode does not function. The [] display flashes.
- If this mode is used indoors, the screen may flicker.

Portrait mode

- If this mode is used indoors, the screen may flicker. If so, change the scene mode setting to [OFF].

Low light mode

- Extremely dark scenes may not be able to be recorded finely.

Spotlight mode

- If the recording subject is extremely bright, the subject may become washed out and the periphery extremely darkened.

Surf & snow mode

- If the subject is extremely bright, the recorded image may become washed out.

Manual focus adjustment

If auto focusing is difficult due to the conditions, then use manual focus.

1 Select the manual focus mode. (➜ 49)

2 Bring the subject into focus with the joystick.



To restore to the automatic adjustment

Press the MANUAL AF/MF button again.

- You can also restore the auto focusing by pressing the AUTO button.

White balance

The automatic white balance function may not reproduce natural colors depending on the scenes or lighting conditions. If so, you can adjust the white balance manually.

1 Select the manual mode. (➜ 49)

2 Select [WB] with the joystick.



3 Select the white balance mode with the joystick.



Icon	Mode/Recording conditions
AWB	**Auto white balance adjustment**
	Indoor mode (for recording under incandescent lamps) Incandescent lights, halogen lamps
	Outdoor mode Outdoors under a clear sky
	Manual adjustment mode ● Mercury-vapor lamps, sodium lamps, some fluorescent lights ● Lights used for wedding receptions at hotels, stage spotlights in theaters ● Sunrise, sunset, etc.

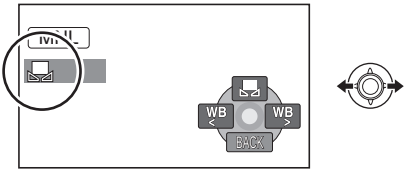
To restore to the automatic adjustment

Set the white balance mode to [AWB].

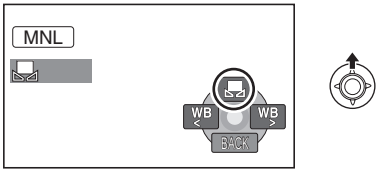
- You can also restore the automatic adjustment by pressing the AUTO button.

To set the white balance manually

1 Select [▀] with the joystick, and fill the screen with a white subject.



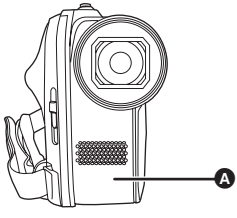
2 Select [▀] with the joystick.



When the [▀] display stops flashing, the setting is complete.

- If the [▀] display continues flashing, the white balance cannot be set because it is too dark. In this case, use the automatic white balance.

■ White balance sensor Ⓐ



The white balance sensor detects the type of light source during recording.
Do not cover the white balance sensor during recording, or it may not function properly.

- When the unit is turned on with the lens cover closed, the automatic white balance adjustment may not function properly. Please turn the unit on after opening the lens cover.
- When the [▀] display flashes, the manual white balance previously adjusted is stored.

Whenever recording conditions change, re-set the white balance for correct adjustment.
- When setting both the white balance and the iris/gain, set the white balance first.

Manual shutter speed/ aperture adjustment

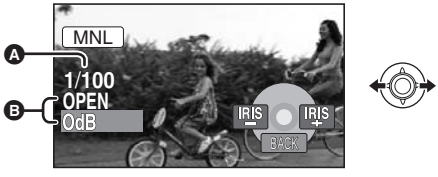
SHTR Shutter Speed:
Adjust it when recording fast-moving subjects.
IRIS Aperture:
Adjust it when the screen is too bright or too dark.

1 Select the manual mode. (➜ 49)

2 Select [IRIS] or [SHTR] with the joystick.



3 Adjust the settings with the joystick.



A Shutter speed:
- 1/30 to 1/8000
- 1/30 to 1/500

- The shutter speed closer to 1/8000 is faster.
- If [AUTO SLW SHTR] is set to [OFF], the slowest shutter speed is 1/60.

B Iris/Gain value:
CLOSE → (F16 to F2.0) → OPEN → (0dB to 18dB)

- Value closer to [CLOSE] darkens the image.
- Value closer to [18dB] brightens the image.
- When the iris value is adjusted to brighter than [OPEN], it changes to the gain value.

To restore to automatic adjustment
Press the AUTO button.

- When setting both the shutter speed and the iris/gain value, set the shutter speed and then set the iris/gain value.

■ Manual shutter speed adjustment
- Avoid recording under fluorescent light, mercury light or sodium light because the color and brightness of the playback image may change.
- If you increase the shutter speed manually, the noise on the screen may increase.
- You may see vertical lines of light in the playback image of a brightly shining subject or highly reflective subject, but this is not a malfunction.
- During normal playback, image movement may not look smooth.
- When recording in an extremely bright place, the screen may change color or flicker. If so adjust the shutter speed manually to [1/60] or [1/100].

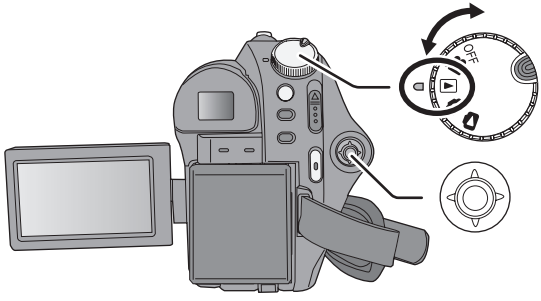
■ Manual iris/gain adjustment
- If the gain value is increased, the noise on the screen increases.
- Depending on the zoom magnification, there are iris values that are not displayed.

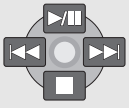
Playback

54 Playback
59 Editing
68 Disc and SD card management
72 With other products

1 Motion picture playback

RAM -RW(VR) -RW(V) -R -R DL





▶/❚❚: Playback/Pause
⏮: Skip playback (backward)
⏭: Skip playback (forward)
■: Stops the playback and shows the thumbnails.

1 Rotate the mode dial to select ▶.

2 Select the scene to be played back, then press the joystick.



Ⓐ Scene number (Page number: When [<]/[>] is selected.)

The selected scene is played back, and the operation icon is automatically displayed on the screen.

3 Select the playback operation with the joystick.



Selecting pages

- Select [<]/[>] and then press the joystick.
- If you move and hold the joystick left or right, you can fast forward or fast rewind the pages. The screen will not change at this time, but the scene or page numbers will change. Release the joystick when you have arrived at the page with the scene you want to display.

- Sound will be heard only during normal playback.
- When the amount of time recorded on the scene is too short, playback may not be possible.
- When a scene is displayed as [[!]] on the thumbnail display, playback is not possible.
- When set to the video playback mode, the power will not turn off even when the LCD monitor and the viewfinder are closed and retracted.
- When playing back a motion picture recorded with other products on this unit or playing back a motion picture recorded with this unit on other products, the picture quality may deteriorate and it may be unplayable. (The message “CANNOT PLAY.” appears.)
- The time displayed may be different from the recording time and it may take time to display the thumbnail display when playing back motion pictures recorded on another product.
- The recording time may not display on the screen during playback of scenes recorded on other products.

To change the playback speed

- Normal playback is restored when you move the joystick up.

■ Fast forward/rewind playback

Move and hold the joystick left or right during playback until fast forward/rewind starts.

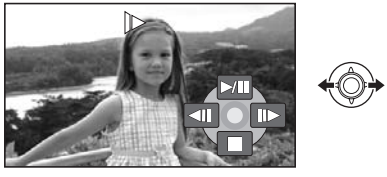


- Move the joystick again to increase the speed.

■ Slow-motion playback

1 **Pause the playback.**

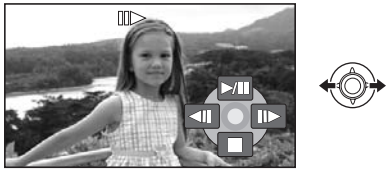
2 **Move and hold the joystick left or right.**



■ Frame-by-frame playback

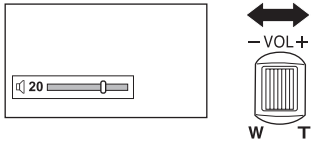
1 **Pause the playback.**

2 **Move the joystick left or right.**



To adjust the speaker volume during playback

Move the volume lever.



Towards “+”: increases the volume
Towards “−”: decreases the volume

Resuming the previous playback

Select the menu. (➜ 30)

[SETUP] → [RESUME PLAY] → [ON]

If playback of a motion picture is stopped, [R] appears on the thumbnail view of the stopped scene.

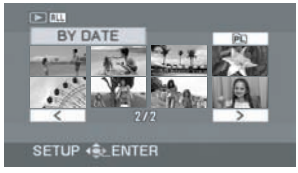
To cancel the resume function
Set [RESUME PLAY] to [OFF].

- The resume position memorized is cleared if you open the disc cover or edit the scenes, etc.

Playing back motion pictures by date

Scenes recorded on the same day can be played back in succession.

1 Select [DATE] (BY DATE), then press the joystick.



2 Select the playback date, then press the joystick.



3 Select the scene to be played back, then press the joystick.

To select a different date
Select [DATE] (BY DATE), then press the joystick.
To return to the screen showing all scenes
Select [ALL] (VIEW ALL), then press the joystick.

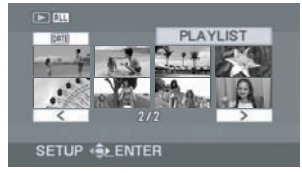
- Even if scenes are recorded on the same day, they are grouped separately in the following cases.
 - When the number of scenes exceeds 99 RAM -RW(VR) -RW(V) -R -R DL
 - When the disc is removed -RW(V) -R -R DL
 - When the [ASPECT] setting is changed -RW(V) -R -R DL
 - When the disc is repaired -RW(V) -R -R DL
 - When the layers switch -R DL

Playing back a playlist

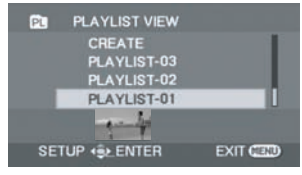
Creating a new playlist (➜ 63)

RAM -RW(VR)

1 Select [PL] (PLAYLIST), then press the joystick.



2 Select the playlist to be played back, then press the joystick.

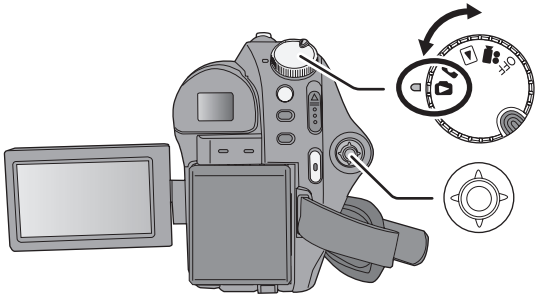


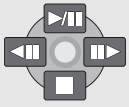
3 Select the scene to start playback, then press the joystick.

To select a different playlist
Select [PL] (PLAYLIST), then press the joystick.
To return to the screen showing the original scenes
Select [ALL] (VIEW ALL), then press the joystick.

Still picture playback

SD





►/❚❚: Slide show start/pause.
◄❚❚: Plays back the previous picture.
❚❚►: Plays back the next picture.
■: Stops the playback and shows the thumbnails.

1 Rotate the mode dial to select .

2 Select the file to be played back, then press the joystick.



Ⓐ File number (Page number: When [<]/[>] is selected.)

- The method for selecting pages is the same as for motion picture playback.

The selected file is played back, and the operation icon is automatically displayed on the screen.

3 Select the playback operation with the joystick.





■ **About still picture compatibility**

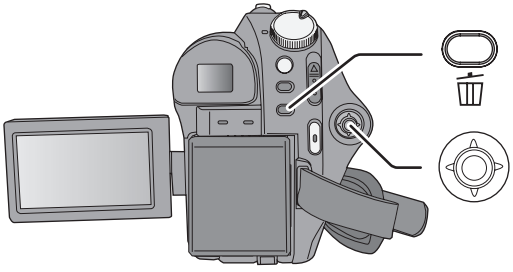
- This unit is compliant with the unified standard DCF (Design rule for Camera File system) established by JEITA (Japan Electronics and Information Technology Industries Association).
- The file format supported by this unit is JPEG. (Not all JPEG formatted files will be played back.)
- If a non-standard file is played back, the folder/file number may not be displayed.
- This unit may degrade or not play back data recorded or created on another product and another product may degrade or not play back data recorded on this unit.

- While this unit accesses the SD card (the ACCESS CARD lamp is lit), do not remove the SD card.
- Do not operate the mode dial during the slide show.
- It takes time to display the file, and how long it will take depends on the number of pixels of the file.
- When a file is displayed as [] on the thumbnail display, playback is not possible.
- The time displayed may be different from the recording time and it may take time to display the thumbnail display when playing back still pictures recorded on another product.
- When set to the picture playback mode, the power will not turn off even when the LCD monitor and the viewfinder are closed and retracted.

1 Deleting scenes/files

RAM -RW(VR) SD

Important:
The deleted scenes/files cannot be restored.
- Scenes on DVD-RW discs in Video format and DVD-R/DVD-R DL discs cannot be deleted.



◇Deleting motion picture scenes:
Rotate the mode dial to select ▶.

◇Deleting still picture files:
Rotate the mode dial to select 📷.

- To delete an unwanted part of a scene, divide the scene first, and then delete the unnecessary part. (➜ 61)

Deleting scenes/files one at a time

1 Press the 🗑 button during playback.

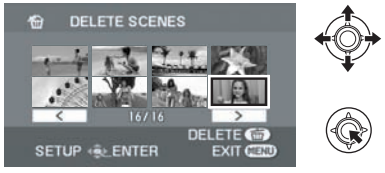
2 When the confirmation message appears
Select [YES], then press the joystick.

Deleting multiple scenes/files

1 Press the 🗑 button in the thumbnail display.

2 Select [SELECT] or [ALL] and press the joystick.
- When [ALL] is selected, the following scenes/files will be deleted. Proceed to step 5.
 - All the scenes on the disc (When a date is selected, all scenes on the selected date)
 - All the files on the SD card except the locked files

3 (Only when [SELECT] is selected in step 2)
Select the scene/file to be deleted, then press the joystick.



The selected scene/file is encircled by a red frame.
- To unselect the scene/file, press the joystick again.
- Up to 50 scenes/files can be selected to be deleted.

4 (Only when [SELECT] is selected in step 2)
Press the 🗑 button.

5 When the confirmation message appears
Select [YES], then press the joystick.

(Only when [SELECT] is selected in step 2)
To continue deleting other scenes/files
Repeat steps 3 to 5.

To complete editing
Press the MENU button.

- You can also delete scenes/files by the menu. Select [EDIT SCENE] or [PICT. SETUP] → [DELETE].
- In case of [ALL], the deletion may take time if there are many scenes/files.

■ Notes for deleting scenes/files
- Do not turn off this unit while deleting.
- When you delete scenes/files, use a battery with sufficient battery power or use the AC adaptor.
- It may not be possible to delete scenes that have been divided to approximately 1 second or less. Combine the divided scenes, and then delete them.
- Do not remove the SD card while deleting.
- If files conforming to DCF standard are deleted, all the data related to the files will be deleted.
- When deleting still picture files recorded on an SD card by other products, a still picture file (other than JPEG) that cannot be played back on this unit may be erased.

Editing scenes

RAM -RW(VR)

◇**Rotate the mode dial to select ▶.**

Function	Operating method
Dividing a scene **This is for dividing a scene into two.** **To delete an unnecessary portion of a scene, first divide the scene and then delete the unnecessary portion.**	***1*** **Select the menu. (➜ 30)** **[EDIT SCENE] → [DIVIDE] → [YES]** ***2*** **Select the scene to be divided, then press the joystick.**  ***3*** When you reach the area where you want to divide the scene **Select [✂] with the joystick.**  ● Move the joystick left or right to fast forward/rewind playback. ● Using slow-motion playback or frame-by-frame playback makes it easy to search for the point where you want to divide the scene. (➜ 55) ***4*** When the confirmation message appears **Select [YES], then press the joystick.** ***To continue dividing other scenes*** Repeat steps 2 to 4. ***To complete editing*** Press the MENU button.

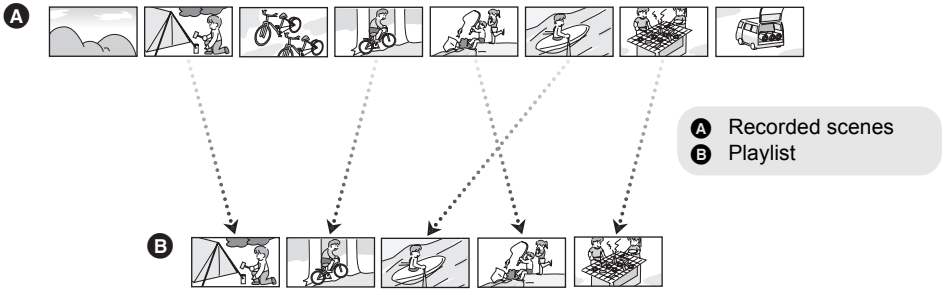
Function	Operating method
Combining scenes **This function is only for combining two consecutive scenes into one.** ● If you wish to combine scenes that are not next to each other or scenes with different recording dates, first create a playlist and then combine the scenes on the playlist. (➜ 63, 65)	***1*** **Select the menu. (➜ 30)** **[EDIT SCENE] → [COMBINE] → [YES]** ***2*** **Select the first scene of the two consecutive scenes to be combined, then press the joystick.**   ***3*** When the confirmation message appears **Select [YES], then press the joystick.** ***To continue combining other scenes*** Repeat steps 2 to 3. ***To complete editing*** Press the MENU button.

3 Using playlists

RAM -RW(VR)

You can create a playlist by gathering your favorite recorded scenes.
Since the playlist is not created by copying data, playlists consume a very small amount of disc space.

- When you create or delete playlists, the original scenes will not be modified. Editing scenes on a playlist will not affect the original scenes.

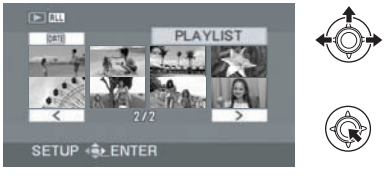


- The maximum number of playlists on one side of a disc: 99
 The maximum number of playlist scenes on one side of a disc: 999
- If original scenes are deleted, the portion of playlists created with these scenes is also deleted.

Creating a new playlist

◇**Rotate the mode dial to select ▶.**

1 Select PL (PLAYLIST), then press the joystick.



2 Select [CREATE], then press the joystick.



3 Select the scene to be added to the playlist, then press the joystick.



The selected scene is encircled by a red frame.
- To unselect the scene, press the joystick again.
- Up to 50 scenes can be selected and added.
- The scenes are registered in the playlist in the order that they were selected.

4 Press the MENU button.

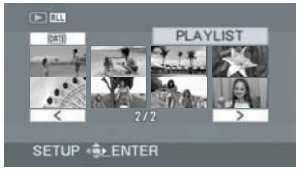
5 When the confirmation message appears
Select [YES], then press the joystick.

Editing a playlist

Editing scenes on a playlist will not affect the original scenes.

◇**Rotate the mode dial to select ▶.**

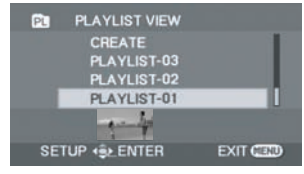
1 Select PL (PLAYLIST), then press the joystick.







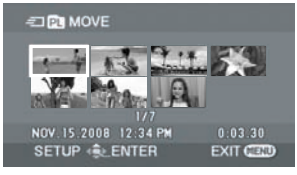
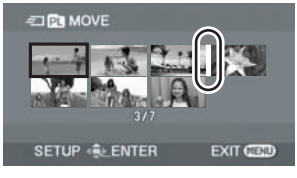
2 Select the playlist to be edited, then press the joystick.







Function	Operating method
Deleting scenes	**The method for deleting playlist scenes is the same as for "Deleting scenes/files". (➜ 59)** ● If you delete scenes on a playlist, it will not affect the original scenes. ● When [ALL] is selected, the selected playlist will be deleted. ● You can also delete playlist scenes by the menu. Select [EDIT] → [DELETE]. ● Deleting scenes on a playlist will not increase the remaining capacity for recording. ● The playlist itself is deleted if you delete all the scenes in it. ● When a playlist is deleted, the number of each subsequent playlist decreases by one.
Adding scenes to playlist **Scenes can be added to the created playlist.**	**Select the menu. (➜ 30)** **[EDIT] → [ADD] → [YES]** The following steps are the same as step 3 to 5 in "Creating a new playlist". (➜ 63)

Function	Operating method
Moving scenes within a playlist **It is possible to change the sequence of scenes in the playlist by moving them to another position.**	***1*** **Select the menu. (➜ 30)** **[EDIT] → [MOVE] → [YES]** ***2*** **Select the scene to be moved, then press the joystick.**  The selected scene is encircled by a red frame, and the position to insert is shown by a yellow bar. ***3*** **Select the position to insert the scene, then press the joystick.**  ***To continue moving other scenes in the playlist*** Repeat steps 2 to 3. ***To complete editing*** Press the MENU button.
Dividing a scene **This is for dividing a scene into two.**	**Select the menu. (➜ 30)** **[EDIT] → [DIVIDE] → [YES]** The following steps are the same as step 2 to 4 in “Dividing a scene” for “Editing scenes”. (➜ 61)
Combining scenes **This function is only for combining two consecutive scenes into one.**	**Select the menu. (➜ 30)** **[EDIT] → [COMBINE] → [YES]** The following steps are the same as step 2 to 3 in “Combining scenes” for “Editing scenes”. (➜ 62)

Editing still pictures

SD

◇**Rotate the mode dial to select .**

Function	Operating method
Locking still pictures **This is for preventing still picture files from being deleted by mistake. (However even if you lock some files on an SD card, formatting the card will delete all the files.)**	***1*** **Select the menu. (➜ 30)** **[PICT. SETUP] → [LOCK SET] → [YES]** ***2*** **Select the file to be protected, then press the joystick.**  [] appears and the selected file is locked. ● Press the joystick again to release the lock setting. ● You can also select multiple files in succession. ***To complete the settings*** Press the MENU button.

Function	Operating method

DPOF setting

This is for writing the print data on selected still pictures.

■ What is DPOF?

DPOF (Digital Print Order Format) is a format which allows the user of a digital camera to define which captured images on the SD card are to be printed, together with information on the number of copies they wish to print. (Please note: Not all commercial printing services support this feature at this time.)

1 Select the menu. (➜ 30)
[PICT. SETUP] → [DPOF SET] → [SET]

2 Select the file to be set, then press the joystick.



3 Select the number of prints, then press the joystick.



- To cancel the setting, set the number of prints to [0].
- You can also select multiple files in succession.

To complete the settings
Press the MENU button.
To cancel all DPOF settings
Select [PICT. SETUP] → [DPOF SET] → [CANCEL ALL].

- The DPOF setting can be established for up to 999 files.
- DPOF setting made on other devices may not be recognized by this unit. Please perform the DPOF settings on this unit.
- You cannot add the recording date to pictures to be printed with the DPOF settings.

Finalizing a disc

-RW(VR) -RW(V) -R -R DL

Allows discs to be played on other devices.
If you insert a DVD-RW or a DVD-R/DVD-R DL disc recorded in this unit (that has not been finalized) into another device such as DVD recorder, PC, etc., the disc may become unusable. Be sure to finalize the disc on this unit before inserting it in other devices.

DVD-RAM:
- It is not necessary to finalize DVD-RAM disc.

DVD-RW (VR format):
- After finalization, DVD-RW (VR format) discs can be recorded and edited in the same way as DVD-RW (VR format) discs before finalization.
- After finalizing a DVD-RW (VR format) disc once, it will not be finalized again. (Even if you record or edit a DVD-RW (VR format) disc, it is not necessary to finalize it again.)

DVD-RW (Video format), DVD-R, DVD-R DL:
- After finalizing, the disc becomes play only, and you can no longer record.
- When you un-finalize a DVD-RW (Video format) disc, the disc can be used for recording again. (➜ 69)

◇**Rotate the mode dial to select ▶.**

1 Connect this unit to the AC adaptor.

- Finalization cannot be executed when using a battery. If the power supply stops while finalizing, the finalization will fail and the data may be damaged. Use the AC adaptor.

2 Select the menu. (➜ 30)

[DISC SETUP] → [FINALIZE] → [YES]

3 When the confirmation message appears **Select [YES], then press the joystick.**

When finalizing a DVD-RW (Video format) or DVD-R/DVD-R DL disc, a top menu is created.
- When finalizing is complete, press the MENU button to exit the message screen.

- Do not finalize a disc recorded on this unit using any other device.
- When using a double sided disc, finalize each side.
- The top menu created when finalizing does not appear on this unit. It appears when the disc is played back on other devices.
- The time it takes to finalize a disc varies. The shorter the recording content on the disc, the longer it will take to finalize the disc.
- Do not shake, bump or expose this unit to heat while finalizing, the finalization will fail and the disc may become unplayable on other devices.
- If the power supply stops while finalizing, the finalization will fail and the disc may become unplayable on other devices even if disc repair is carried out.

Un-finalizing a DVD-RW disc

-RW(V)

This is for un-finalizing a DVD-RW (Video format) disc so that it can be used for recording.

◇**Rotate the mode dial to select ▶.**

1 **Select the menu. (➜ 30)**

[DISC SETUP] → [UN-FINALIZE] → [YES]

2 When the confirmation message appears
Select [YES], then press the joystick.

- When un-finalizing is complete, press the MENU button to exit the message screen.

- Discs other than DVD-RW (Video format) discs cannot be un-finalized.
- When you un-finalize the disc, use a battery with sufficient battery power or the AC adaptor.

Protecting a disc/disc information

Protecting a disc

RAM -RW(VR)

This is for preventing recorded contents from being deleted or edited by mistake.
Further recording and editing is not possible on protected discs until the protection is released.

◇**Rotate the mode dial to select ▶.**

1 **Select the menu. (➜ 30)**

[DISC SETUP] → [DISC PROTECT]

2 When the confirmation message appears
Select [YES], then press the joystick.

To release disc protection
Select [DISC SETUP] → [DISC PROTECT] again.

- If the disc has been protected on another device, it may not be possible to release the protection on this unit. In this case, release the protection on the device that you used to protect it.

Displaying disc information

RAM -RW(VR) -RW(V) -R -R DL

Information such as the number of recorded scenes, the remaining space and whether or not the disc is finalized or protected is displayed.

◇**Rotate the mode dial to select 📹 or ▶.**

Select the menu. (➜ 30)

[DISC SETUP] → [INFORMATION] → [YES]

To exit the information screen
Press the MENU button.

Formatting a disc/an SD card

Formatting a disc

RAM -RW(VR) -RW(V)

This is for initializing discs.
Please be aware that if a disc is formatted, then all the data recorded on the disc will be erased.

◇**Rotate the mode dial to select or .**

1 **Select the menu. (➜ 30)**

[DISC SETUP] → [FORMAT DISC] → [YES]

- When formatting a DVD-RAM disc, skip to step 3.

2 (When formatting a DVD-RW disc only)
Select format type (➜ 22), then press the joystick.

3 When the confirmation message appears
Select [YES], then press the joystick.

- When formatting is complete, press the MENU button to exit the message screen.

- When using a double sided disc, format each side.
- It may not be possible to format a disc that is scratched or dirty. Such discs cannot be used.
- Do not turn this unit off while formatting.
- When you format the disc, use a battery with sufficient battery power or the AC adaptor.

Formatting a DVD-RAM disc:

- We recommend formatting discs on this unit. If formatting on a PC, use the supplied software. For more details, refer to the operating instructions of the software.

Formatting a DVD-RW disc:

- Format on this unit.

Formatting an SD card

SD

This is for initializing SD cards.
Please be aware that if an SD card is formatted, then all the data recorded on the card will be erased. Back up important data on a PC, etc.

◇**Rotate the mode dial to select or .**

1 **Select the menu. (➜ 30)**

[SETUP] → [FORMAT CARD] → [YES]

2 When the confirmation message appears
Select [YES], then press the joystick.

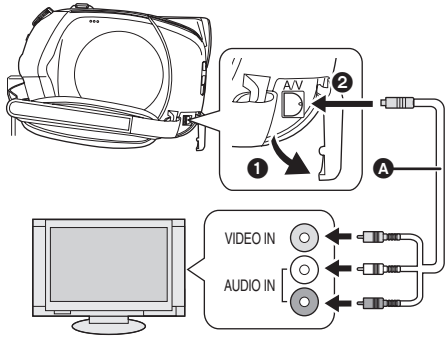
- When formatting is complete, press the MENU button to exit the message screen.

- Use this unit to format SD cards. If an SD card is formatted on other products (such as a PC), the time spent for recording may become longer and you may not be able to use the SD card.
- Depending on the type of SD card being used, it may take time to format.
- During formatting, do not turn this unit off.
- When you format the SD card, use a battery with sufficient battery power or the AC adaptor.
- Do not remove the SD card while formatting.

Playback on TV

RAM -RW(VR) -RW(V) -R -R DL SD

The motion pictures and still pictures recorded by this unit can be played back on a TV.
- Use the AC adaptor to free you from worrying about the battery running down.



Ⓐ AV cable (supplied)
- Insert the plugs as far as they will go.
- Do not use any other AV cables except the supplied one.

- Select the video input on the TV that this unit is connected to.

1 Connect this unit and a TV.

2 Turn on this unit, then rotate the mode dial to select ▶ or 📷.

3 Start playback on this unit.

■ If the image or audio from this unit does not appear on the TV
- Check the connections.
- Check that the plugs are inserted as far as they go.
- **Check the TV's input setting (input switch). (For more information, please read the operating instructions for the TV.)**

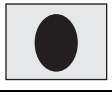
■ To watch images with a 16:9 aspect ratio on a regular TV (4:3)

If the images are squeezed horizontally on a TV with a 4:3 aspect ratio, change the menu setting to play back the pictures in the original aspect ratio.
- If the images are not displayed correctly on a wide-screen TV, adjust the aspect setting on the TV. (Refer to the operating instructions of the TV for details.)

Select the menu. (➜ 30)

[SETUP] → [TV ASPECT] → [4:3]

Example of images with a 16:9 aspect ratio on a regular TV (4:3)

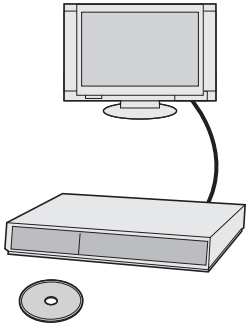
[TV ASPECT] setting	
[16:9]	[4:3]
	

- This function's default setting is [16:9].
- Depending on the TV setting, the pictures may not be displayed correctly. For more information, please read the operating instructions of your TV.

With a DVD recorder/player

RAM -RW(VR) -RW(V) -R -R DL

- **Do not insert a DVD-RW or a DVD-R/DVD-R DL disc recorded in this unit (that has not been finalized) into another device such as DVD recorder, DVD player, PC, etc. as the disc may become unusable.**
- **If you insert a DVD-RW disc recorded in this unit (that has not been finalized) into another device such as DVD recorder, PC, etc., a format message may appear. Do not format the disc as all the important data recorded on the disc will be erased and cannot be recovered.**



Playback on DVD recorder, DVD player, PC etc.

- When playing back a disc on a DVD recorder/ player, place the device so that the disc lies flat.

1 For a DVD-RW or a DVD-R/DVD-R DL disc
Finalize the disc on this unit. (➜ 68)

2 Insert the disc in the playback device and then play it back.

- Playback is only possible on devices that support 8 cm (3″) DVD-RAM, DVD-RW (VR format), or DVD-R DL discs. Refer to the operating instructions of the playback device. RAM -RW(VR) -R DL
- Playback is possible on devices that support 8 cm (3″) DVD-Video, but playback on all DVD players is not guaranteed. -RW(V) -R

Copying (dubbing) recordings onto a DVD recorder's hard disk

- If you want to record (dub) a disc that the DVD recorder is not compatible with, connect this unit and the DVD recorder with the AV cable and then record (dub) the disc. (➜ 74)

1 For a DVD-RW or a DVD-R/DVD-R DL disc
Finalize the disc on this unit. (➜ 68)

2 Insert the disc in the DVD recorder, then copy (dub) the contents onto the hard disk.

- For details, refer to the operating instructions of the DVD recorder.

- If your DVD recorder has an SD card slot, you can copy the still pictures recorded on the SD card to a disc or the hard drive.
- If you copy (dub) images recorded on a DVD-RW (Video format) or a DVD-R/DVD-R DL disc, the title name of the images after copying (dubbing) becomes the date they were dubbed.

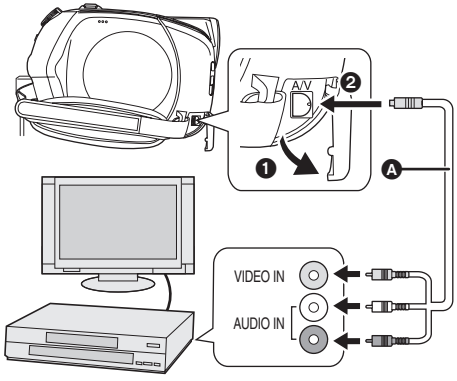
If you record (dub) images directly from the disc or with the AV cable and then play them back on a wide-screen TV, they may be squeezed horizontally. In this case, refer to the operating instructions of the device you are recording (dubbing) to or read the operating instructions of the wide-screen TV and set the aspect setting to 16:9 (Full).

3 Recording (dubbing) images onto a VCR

RAM -RW(VR) -RW(V) -R -R DL

You can create a playlist by gathering the scenes you want to record (dub), then record (dub) the scenes in this playlist only to other devices. (➜ 63)

- Use the AC adaptor to free you from worrying about the battery running down.



Ⓐ AV cable (supplied)
- Insert the plugs as far as they will go.
- Do not use any other AV cables except the supplied one.

- Select the video input on the video device and TV that this unit and the video device are connected to.

1 Connect this unit and a video device.

2 Turn on this unit, then rotate the mode dial to select ▶.

3 Start playback on this unit. Then start recording on the connected device.

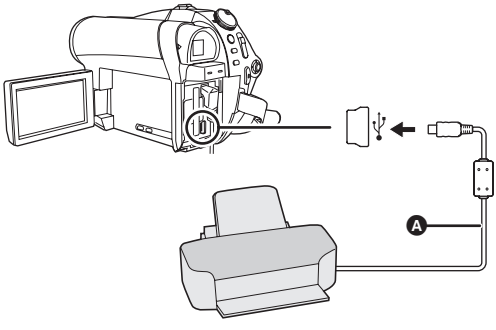
To stop recording (dubbing)

Stop recording on the connected device.
Then stop playback on this unit.

With a printer (PictBridge)

SD

To print pictures by directly connecting this unit to the printer, use a printer compatible with PictBridge. (Read the operating instructions for the printer.)



A USB cable (supplied)
- Insert the USB connectors as far as they will go.
- Do not use any other USB connection cables except the supplied one. (Operation is not guaranteed with any other USB cables.)

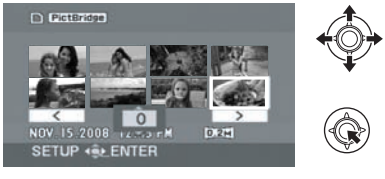
◇**Connect this unit to the AC adaptor and turn on the unit.**

1 Connect this unit and a printer.

2 Select [PictBridge] and press the joystick.

The [PictBridge] indication appears on this unit's screen.

3 Select a file to be printed, then press the joystick.



4 Select the desired number of prints, then press the joystick.





- You can set up to 9 prints.
- To cancel the setting, set the number of prints to [0].
- Up to 8 files can be selected to be printed.

5 Press the MENU button to display the PictBridge menus.

6 Select the date print setting on [DATE PRINT], then press the joystick.

- If the printer is not capable of date printing, this setting is unavailable.

7 Select the paper size setting on [PAPER SIZE], then press the joystick.

[STANDARD]:
Size specific to the printer
[4x5 INCH]:
L size
[5x7 INCH]:
2L size
[4x6 INCH]:
Postcard size
[A4]:
A4 size

- You cannot set paper sizes not supported on the printer.

8 Select the layout setting on [PAGE LAYOUT], then press the joystick.

[STANDARD]:
Layout specific to the printer
[]:
No frame print
[]:
Frame print

- You cannot set page layouts not supported on the printer.

9 Select [PRINT] → [YES] and press the joystick.

- Exit PictBridge by disconnecting the USB cable after the pictures have been printed.

When you want to stop printing halfway
Move the joystick down.
A confirmation message appears. If [YES] is selected, the number of prints set is canceled and the screen returns to step 3. If [NO] is selected, all the settings are kept and the screen returns to step 3.

- Avoid the following operations during printing. These operations disable proper printing.
 - Disconnecting the USB cable
 - Removing the SD card
 - Switching the mode dial
 - Turning off the power
- Check the settings for the paper size, quality of print, etc. on the printer.
- The sides of pictures recorded in [0.2M] mode may be cut off. Check before printing (print preview).
 When using a printer with a trimming or borderless printing function, cancel this function before printing. (Refer to the operating instructions of the printer for details.)
- When the unit is connected directly to the printer, the DPOF settings cannot be used.
- Connect the printer directly to this unit. Do not use a USB hub.

With a PC

78 Before using
82 Setup
87 Using software
88 Using a Macintosh

What you can do with a PC

When you have installed VideoCam Suite from the supplied CD-ROM and connected your PC to the unit, you can perform the operations described below.



- Ⓐ Play back images recorded by this unit on a PC.
- Ⓑ Copy images recorded by this unit onto the PC hard disk.
 Select the desired images and create original DVD-Video discs.
- Ⓒ Edit (split, merge, or delete) images copied to a PC.
 Create playlists.

- VideoCam Suite can handle images recorded with this unit or by using VideoCam Suite. Images created with other video cameras, DVD recorders, software and commercial DVD-Videos are not supported.
- We cannot guarantee proper operation of this unit if you use software other than that supplied.

■ Adobe Reader

To view the installed operating instructions, Adobe Reader (Adobe Acrobat Reader) 5.0 or later is required.
If the Adobe Reader (Adobe Acrobat Reader) is not already installed on your PC, you can install it from the CD-ROM. Click the [Adobe Reader] in [Setup Menu], and follow the on-screen messages to install.

- The following system requirements are necessary in order to install Adobe Reader from the supplied CD-ROM.
 - Intel Pentium III or equivalent processor
 - Microsoft Windows 2000 Professional Service Pack 4, Microsoft Windows XP Home Edition Service Pack 2, Microsoft Windows XP Professional Service Pack 2, or Microsoft Windows Vista
 - 128 MB of RAM (256 MB recommended for complex forms or large documents)
 - Microsoft Internet Explorer 6.0 or 7.0, Firefox 1.5 or 2.0, Mozilla 1.7, AOL 9
- If the application cannot be installed under the system requirements listed above, execute Windows Update and then attempt to install the application again.

Operating environment

- A CD-ROM drive is necessary to install the supplied software applications.
- When 2 or more USB devices are connected to a PC, or when devices are connected through USB hubs or by using extension cables, proper operation is not guaranteed.
- Use the supplied USB cable when connecting to the PC. (Operation is not guaranteed with any other USB cables.)

■ VideoCam Suite 1.0

Personal computer	IBM PC/AT compatible personal computer
OS	Microsoft Windows 2000 Professional Service Pack 4 Microsoft Windows XP Home Edition Service Pack 2 Microsoft Windows XP Professional Service Pack 2 Microsoft Windows Vista Home Basic Microsoft Windows Vista Home Premium
CPU	Intel Pentium III 800 MHz or higher (Intel Pentium 4 1.8 GHz or higher recommended)
RAM	Windows Vista: 512 MB or more (1 GB or more recommended) Windows XP/2000: 256 MB or more
Display	High Color (16 bit) or more (32 bit or more recommended) Desktop resolution of 1024×768 pixels or more Video card supporting DirectX 9.0c (supports overlay of DirectDraw)
Free hard disk space	DMA transfer effective at Ultra DMA/33 or more (Ultra DMA/100 or higher recommended) For installing the application: 150 MB or more When creating discs (DVD-Video): 5 GB or more for the work folder (10 GB or more in the case of dual layer discs) ● If compression setting is enabled, errors may occur during recording. Please uncheck [Compress this drive and clear the disc area] in [Properties] on the hard disk drive.
Necessary software	DirectX 9.0c or later ● If you install the software on a PC that is not compatible with DirectX 9.0c, the PC may not work properly. If you are unsure whether or not your PC is compatible, contact the maker of your PC. Adobe Acrobat Reader 5.0 or later or Adobe Reader 6.0 or later (required to display the operating instructions) ● For Windows Vista, use Adobe Reader 8.0 or later.
Disc drive	A drive that supports recording on DVD-R/DVD-RW/DVD-RAM discs
Sound	DirectSound support
Interface	USB port [Hi-Speed USB (USB 2.0) is recommended]
Other requirements	Mouse or equivalent pointing device

- Even if the system requirements mentioned in these operating instructions are fulfilled, some personal computers cannot be used.
- Supplied CD-ROM is available for Windows only.
- This software is not compatible with Microsoft Windows 3.1, Windows 95, Windows 98/98SE, Windows Me and Windows NT.
- Operation on an upgraded OS is not guaranteed.
- Operation is not guaranteed on computers that are not PC/AT compatible.
- This software is not compatible with a multi-boot environment.
- This software is not compatible with a multi-CPU environment.
- Operation is not guaranteed on Microsoft Windows XP Media Center Edition, Tablet PC Edition, Windows Vista Business/Enterprise and 64 bit operation systems.
- Input is not supported in languages other than English, French and Spanish.
- DirectX 9.0c will be installed automatically during installation of the supplied software.
- Operation cannot be guaranteed on all DVD drives.
- DVD discs authored with this software are not guaranteed to play in all DVD players.
- Depending upon the environment of your PC, if it does not support Hi-Speed USB (USB 2.0), for example, frame dropout may occur, the audio may be intermittent, or the software may run slowly when you play back recorded images.
- If your PC does not satisfy the above system requirements, an error may occur when writing data to disc.

■ SD card reader function (mass storage)

Personal computer	IBM PC/AT compatible personal computer
OS	Microsoft Windows 2000 Professional Service Pack 4 Microsoft Windows XP Home Edition Microsoft Windows XP Professional Microsoft Windows Vista Home Basic Microsoft Windows Vista Home Premium
CPU	Windows Vista: Intel Pentium III 1.0 GHz or higher Windows XP/2000: Intel Pentium II 300 MHz or higher
RAM	Windows Vista Home Basic: 512 MB or more Windows Vista Home Premium: 1 GB or more Windows XP/2000: 32 MB or more (64 MB or more recommended)
Interface	USB port

- The USB equipment operates with the driver installed as standard in the OS.

End User License Agreement

Before opening the CD-ROM package, please read the following.

You (“Licensee”) are granted a license for the Software defined in this End User Software Agreement (“Agreement”) on condition that you agree to the terms and conditions of this Agreement. If Licensee does not agree to the terms and conditions of this Agreement, promptly return the Software to Matsushita Electric Industrial Co., Ltd. (“Matsushita”), its distributors or dealers from which you made the purchase.

Article 1 License
Licensee is granted the right to use the software, including the information recorded or described on the CD-ROM, instruction manuals, and any other media provided to Licensee (collectively “Software”), but all applicable rights to patents, copyrights, trademarks and trade secrets in the Software are not transferred to Licensee.

Article 2 Use by a Third Party
Licensee may not use, copy, modify, transfer or allow any third party, whether free of charge or not, to use, copy or modify the Software, except as expressly provided for in this Agreement.

Article 3 Restrictions on Copying the Software
Licensee may make a single copy of the Software in whole or in part solely for back-up purposes.

Article 4 Computer
Licensee may only use the Software on a single computer at a single location.

Article 5 Reverse Engineering, Decompiling or Disassembly
Licensee may not reverse engineer, decompile, or disassemble the Software, except to the extent either of them is permitted under law or regulation of the country where Licensee resides. Matsushita, or its distributors or dealers will not be responsible for any defects in the Software or damage to Licensee caused by Licensee’s reverse engineering, decompiling, or disassembly of the Software.

Article 6 Limitation of Liability
The Software is provided “AS-IS” without warranty of any kind, either expressed or implied, including, but not limited to, warranties of non-infringement, merchantability and/or fitness for a particular purpose. Further, Matsushita does not warrant that the operation of the Software will be uninterrupted or error free. Matsushita or any of its distributors or dealers will not be liable for any damage suffered by Licensee arising from or in connection with Licensee’s use of the Software.

Article 7 Export Control
Licensee agrees not to export or re-export to any country the Software in any form without the appropriate export licenses under regulations of the country where Licensee resides, if necessary.

Article 8 Termination of License
The right granted to Licensee hereunder will be automatically terminated if Licensee violates any of the terms and conditions of this Agreement. Upon such automatic termination, Licensee must destroy the Software and related documentation together with all the copies thereof at Licensee’s own expense.

1 Installation

When installing the software, log on to your PC as the Administrator (or with a user name with equivalent authorization) or with the user name for a standard user account. (If you do not have authorization to do this, consult your manager.)

- Before starting the installation, close any other software applications which are running.
- Do not perform any other operations on your PC while the software is being installed.

For Windows Vista:
If [User Account Control] dialog appears, click [Continue].

Installing VideoCam Suite

1 Insert the CD-ROM into the PC.

The [Setup Menu] screen will appear.

- If the [Setup Menu] screen does not appear, double-click the CD-ROM drive icon in [My Computer (Computer)].

2 Click [VideoCam Suite].



3 Click [Next].

4 Select where the application is to be installed, then click [Next].



5 Select [Yes] or [No] to create shortcut.

6 Select the country or region where you live, then click [Next].

- If the country or region cannot be selected, select [NTSC Area].



- When the confirmation message appears, click [Yes].

7 Click [Install] to start the installation process.



8 When installation is complete, some notes will appear

Check the contents, then close the window.

9 Select [Yes, I want to restart my computer now.], then click [Finish].



The PC must be rebooted for the application to work.

- Depending on the operating environment, you may be required to install DirectX 9.0c. If so, click [Yes], and install it.
 If you install the software on a PC that is not compatible with DirectX 9.0c, the PC may not work properly. If you are unsure whether or not your PC is compatible, contact the PC manufacturer.

Uninstalling the software

Follow the steps below to uninstall the software if it is no longer required.

■ For Windows Vista

1 Select [Start] → [Control Panel] → [Uninstall a program].



2 Select [VideoCam Suite 1.0], then click [Uninstall].



■ For Windows XP

1 Select [start] → [Control Panel] → [Add or Remove Programs].



2 Select [VideoCam Suite 1.0], then click [Remove].



■ For Windows 2000

1 Select [Start] → [Settings] → [Control Panel] → [Add/Remove Programs].



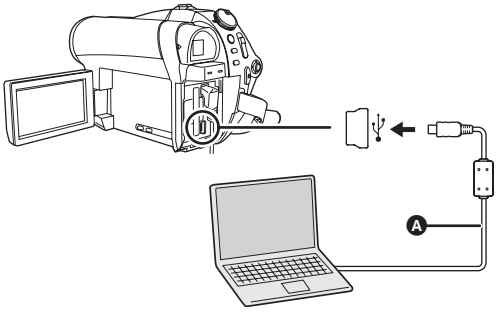
2 Select [VideoCam Suite 1.0], then click [Change/Remove].



2 Connection and recognition

After the software is installed, the unit must be connected to the PC and be correctly recognized by the PC.

- Remove the supplied CD-ROM from your PC.
- **Be sure to finalize DVD-RW (VR format), DVD-RW (Video format) and DVD-R/DVD-R DL discs on this unit, before using them on the PC. Discs that have not been finalized will not be recognized by the PC.**



Ⓐ USB cable (supplied)
- Insert the USB connectors as far as they will go.
- Do not use any other USB connection cables except the supplied one. (Operation is not guaranteed with any other USB cables.)

◇**Connect this unit to the AC adaptor.**

1 Insert a disc or SD card with recorded images in the unit, then turn on the unit.

2 Connect this unit and a PC.

The USB function selection screen will appear.

3 Select [PC CONNECT(DISC)] or [PC CONNECT(CARD)] and press the joystick.

This unit is automatically detected by the PC.

- **When the unit is connected to a PC, its power cannot be turned off. Disconnect the USB cable before turning this unit off. (➜ 86)**
- If the unit is connected to a PC when the USB function is set to [PC CONNECT(DISC)], no image will appear on the LCD monitor or the viewfinder.
- When this unit is connected to a PC, you cannot use this unit's DISC EJECT lever to remove a disc. Use Windows Explorer to right-click the drive icon for this unit and select [Eject].
- Do not disconnect the USB cable or AC adaptor while the access lamp is on or SD card access icon () appears on the LCD monitor. Doing so may damage the data on the disc or SD card.
- The disc and SD card cannot be accessed simultaneously.
- It may be necessary to reboot the PC after connecting this unit to it for the first time.

About the PC display

When the unit is connected to a PC, it is recognized as an external drive.

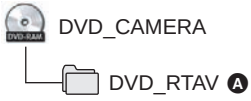
- Depending on the operating environment of the PC, the shape of the drive icon and the drive name will differ. These illustrations are examples.

■ When accessing the disc



Optical disc drive is displayed in [My Computer (Computer)].

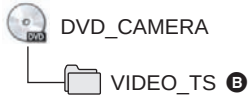
Folder structure* RAM -RW(VR):



Ⓐ VR format motion pictures are stored.

* This is not displayed in Windows 2000.

Folder structure -RW(V) -R -R DL:



Ⓑ Video format motion pictures are stored.

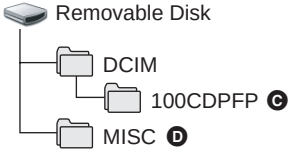
Do not move or change the name of the folders and files recorded on this unit with Windows Explorer etc.

■ When accessing the SD card



[Removable Disk] is displayed in [My Computer (Computer)].

Folder structure SD:



Ⓒ JPEG format still pictures (IMGA0001.JPG etc.) are stored.

- Up to 999 files can be recorded in the [100CDPFP] or other such folder.

Ⓓ The DPOF setting files are stored.

■ Copying still pictures on PC

SD card reader function (mass storage)

When the unit is connected to a PC and the SD card can be used as an external drive, still pictures on the card can be copied to the PC with Windows Explorer or other programs.

1. **Double click the folder that contains the files on the removable disk ([100CDPFP] etc.).**
2. **Drag and drop the files onto the destination folder (on the PC hard disk).**

- Do not delete the SD card's folders. Doing so may make the SD card unusable in this unit.
- Always use this unit to format SD cards.

To disconnect USB cable safely

1 Double click the () icon in task tray.

Hardware disconnect dialog appears.

- Depending on your PC's settings, this icon may not be displayed.

2 Select [USB Mass Storage Device] and click [Stop].

3 Verify [MATSHITA DVD-RAM CAM-DD4 USB Device] or [MATSHITA DVD CAM-SD USB Device] is selected and click [OK].

Click [Close], and you can safely disconnect the cable.

1 Starting VideoCam Suite

For Windows Vista:
- When using VideoCam Suite, log on to your PC as Administrator (or with a login name equally authorized) or with the user name for a standard user account. If you log on with a user name for a guest user account, the software cannot be used.

For Windows XP/2000:
- When using VideoCam Suite, log on to your PC as Administrator (or with a login name equally authorized). If you log on with a login name other than Administrator, the software cannot be used.

Select [start] → [All Programs (Programs)] → [Panasonic] → [VideoCam Suite 1.0] → [VideoCam Suite].



Refer to the operating instructions of the software (PDF file) for details on how to use it.

- When using VideoCam Suite, data can only be written to a DVD-RAM disc using this unit. This unit is only capable of reading other types of discs.

Take care that the temperature of the unit, when connected to a PC, does not rise excessively (reference for usage: approx. 30 minutes at about 30 °C (86 °F)).

Reading the operating instructions of the software

- You will need Adobe Reader to read the PDF operating instructions. (➜ 78)

Select [start] → [All Programs (Programs)] → [Panasonic] → [VideoCam Suite 1.0] → [Manual].



1 If using a Macintosh

■ Operating environment for the SD card reader function (mass storage)

Personal computer	Macintosh
OS	Mac OS X v10.4
CPU	PowerPC G5 (1.8 GHz or higher) Intel Core Duo Intel Core Solo
RAM	64 MB or more
Interface	USB port

- Even if the system requirements mentioned in these operating instructions are fulfilled, some personal computers cannot be used.
- The USB equipment operates with the driver installed as standard in the OS.
- Supplied CD-ROM is available for Windows only.

■ Copying still pictures on PC

1 Connect this unit to a PC via the supplied USB cable.

- The USB function selection screen will appear.

2 Select [PC CONNECT(CARD)], then press the joystick.

3 Double-click [NO NAME] icon displayed on the desktop.

- Files are stored in [100CDPFP] folder etc. in the [DCIM] folder.

4 Drag and drop the files onto the destination folder (on the PC hard disk).

■ To disconnect USB cable safely

Drag [NO NAME] icon to the [Trash], and then disconnect the USB cable.

Others

90 Indications
94 Helpful hints

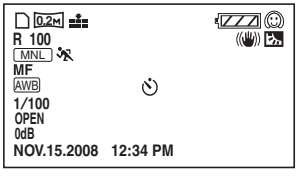
Indications

■ Recording indications

Motion picture recording



Still picture recording



	Remaining battery power (➜ 21)
R 30min	Remaining time for recording
0h00m00s	Elapsed recording time
NOV.15.2008 12:34 PM	Date/time indication (➜ 33)
●/❚❚ (Red)	Recording/writing to a disc (➜ 37)
❚❚ (Green)	Recording pause (➜ 37)
WIDE	Aspect ratio 16:9 (➜ 48)
AUTO	Auto mode (➜ 36)
MNL	Manual mode (➜ 49)
MF	Manual focus (➜ 50)
2×	Zoom magnification indication (➜ 41)
	Back light mode (➜ 46)
	Image stabilizer (➜ 43)
1/100	Shutter speed (➜ 52)
OPEN, F2.0	F number (➜ 52)
0dB	Gain value (➜ 52)
	Soft skin mode (➜ 46)
W, B	Fade (White), Fade (Black) (➜ 46)
	MagicPix function (➜ 46)
ZOOM	Zoom microphone (➜ 42)
	Wind noise reduction (➜ 48)
XP, SP, LP	Motion picture recording mode (➜ 38)
	Scene mode (➜ 50)
	Sports mode
	Portrait mode
	Low light mode
	Spotlight mode
	Surf & snow mode
	White balance (➜ 51)
AWB	Auto white balance
	Indoor mode (recording under incandescent lamp)
	Outdoor mode
	Manual adjustment mode
	Disc type (➜ 22)
RAM	DVD-RAM
VR RW	DVD-RW (VR format)
Video RW	DVD-RW (Video format)
RW	DVD-RW (unformatted)
R	DVD-R
DL R	DVD-R DL
	Self-Timer recording (➜ 47)
	Number of recording pixels for still pictures (➜ 40)
0.3M	640×480
0.2M	640×360
(White)	SD card can be recorded
(Green)	Recognizing the SD card
(Red)	Recording/accessing the SD card
,	Still picture quality (➜ 40)
R 100	Remaining number of still pictures

■ Playback indications

Motion picture playback



Still picture playback



►	Playback (➜ 54)
❚❚	Pause (➜ 54)
►►, ►►►/ ◄◄, ◄◄◄	Fast forward/rewind (➜ 55)
►❙/❙◄	Last/first scene paused
►►❙/❙◄◄	Skip playback (➜ 54)
▸/◂	Slow-motion playback (➜ 55)
❚❚►/◄❚❚	Frame-by-frame playback (➜ 55)
0h00m00s	Motion picture playback time
	Play mode (➜ 56)
ALL	All scenes on the disc displayed
DATE **01**	Scenes recorded on the selected date displayed
PL **01**	Scenes in the selected playlist displayed
XP, SP, LP	Motion picture recording mode (➜ 38)
No.10	Scene number
	Volume adjustment (➜ 55)
R	Resume playback (➜ 56)
	Contents that have been protected on another device Locked still pictures (➜ 66)
100-0001	Still picture folder/file number display

PictBridge	When a printer compatible with PictBridge is connected (➜ 75)
	Accessing the SD card (When connected to a PC)
1	DPOF already set (to more than 1) (➜ 67)
	Number of recording pixels for still pictures (➜ 40)
0.3M	640×480
0.2M	640×360

The picture size is not displayed for still pictures recorded with other products that have different picture sizes from the sizes shown above.

■ Confirmatory indications

–– (Time display)	The built-in battery is low. (➜ 33)
!	The warning/alarm indication appears when LCD monitor is rotated towards the lens side. Return the direction of the LCD monitor to normal position and check the warning/alarm indication.
NO DISC	No disc is inserted.
	Unusable disc
	No SD card is inserted. Unusable card

2 Messages

CANNOT READ THIS DISC. PLEASE CHECK FOR SCRATCHES OR STAINS ON DISC.

The disc is scratched or dirty. Eject the disc and clean it. (➜ 24) If there are scratches on the disc, use a new disc.

THIS DISC IS INCOMPATIBLE.

You inserted an incompatible disc (copy-protected discs, etc.).

PLEASE CHECK THE DISC.

You inserted a disc that cannot be read on this unit (a disc recorded in an incompatible data format etc.).

RECOMMENDED TO USE PANASONIC DISC

You inserted a disc that does not meet the DVD standard for quality and performance so you may not be able to record normally. Refer to the following support site for information about discs that have been confirmed as compatible by Panasonic.
http://panasonic.jp/support/global/cs/e_cam (This website is in English only.)

CANNOT RECORD. (THIS DISC IS FINALIZED)

A finalized DVD-RW (Video format) or DVD-R/DVD-R DL disc has been inserted. After finalizing, the discs become play only and cannot record. If you un-finalize a DVD-RW (Video format) disc, it can be used for recording. (➜ 69)

FINALIZE THE DISC TO ENABLE PLAYBACK ON OTHER DEVICES.

If you insert a DVD-RW or a DVD-R/DVD-R DL disc recorded in this unit (that has not been finalized) into another device such as DVD recorder, PC, etc., the disc may become unusable. Be sure to finalize the disc on this unit before inserting it in other devices.

CHECK CARD.

This card is not compatible or it cannot be recognized by the unit.

THIS BATTERY CANNOT BE USED.

Use a battery that is compatible with this unit. (➜ 18)
You are attempting to connect an AC adaptor not compatible with this unit. Use the supplied AC adaptor. (➜ 21)
If using a Panasonic battery compatible with this unit (➜ 18), remove the battery and then insert it again. If the message appears even after repeating this several times, this unit needs repair. Detach the power and contact consumer support (➜ 113, 114). Do not attempt to repair it by yourself.

PUSH THE RESET SWITCH.

CHECK THE DISC AFTER PUSHING THE RESET SWITCH TO REPAIR THE DATA.

An irregularity in the unit has been detected. Press the RESET button to restart the unit. (➜ 99)

EXIT THE MENU THEN CHANGE TO MANUAL MODE.

CANCEL MAGICPIX MODE.

You are attempting to use a function that cannot be used simultaneously.

CANNOT SET.

With DVD-RW (Video format) and DVD-R/DVD-R DL discs, if the number of dates displayed when DATE (BY DATE) is selected is 99, you cannot change the aspect ratio from 16:9 to 4:3 and vice versa.

DISCONNECT USB CABLE.

The unit cannot correctly establish the connection to the PC or printer. Disconnect and reconnect the USB cable and then select the desired USB function again.

CANNOT OPERATE WHILE CONNECTED TO COMPUTER.

The unit's power cannot be turned off when the unit is connected to the PC.

About recovery

It is possible that the system cannot complete writing of a file normally when, for example, power is turned off for some reason during recording or editing.
If faulty management information is found when a disc is accessed, the following message may appear. Be sure to follow the messages. (Repairing may take time depending on the error.)

DISC DATA IS NOW BEING REPAIRED. DO NOT SHAKE THE UNIT.

- When you repair the disc, use a battery with sufficient battery power or the AC adaptor. Even if the power is turned off without repairing the disc, you can repair the disc when you turn the power on again.
- Depending on the condition of the data, it may not be possible to completely repair the data.
- Do not repair a disc that has been recorded on another device. This may cause the loss of data or the disc.

1 Functions that cannot be used simultaneously

Some functions in this unit are disabled or cannot be selected due to the unit's specifications. The table below shows examples of functions restricted by various conditions.

Functions	Conditions which disable the functions
Digital zoom	● In picture recording mode
Fade	
MagicPix	● While recording to a disc (Cannot set or cancel) ● In picture recording mode
Backlight compensation	● When the MagicPix function is used ● When the iris/gain is set
Soft skin mode (Set and cancel)	● While recording to a disc
Help mode	
Scene mode	● In auto mode ● When the MagicPix function is used
Change of white balance	● When digital zoom is used ● When the MagicPix function is used
Adjusting the shutter speed, iris/gain	● When the MagicPix function is used ● When the scene mode is used

2 Frequently asked questions

What kind of discs can be used?

DVD-RAM, DVD-RW, DVD-R and DVD-R DL discs can be used if they are 8 cm (3″) non-cartridge discs. (➜ 22)

Can discs with a cartridge be used?

They can be used if the cartridge is removed.

Can double sided discs be used?

They can be used.
However you cannot record or play continuously from one side of the disc to the other. You will need to eject the disc and turn it over.

Can I record continuously from one side of the disc to the other on a double sided disc?

You cannot record continuously from one side of the disc to the other. The recording time indicated on the disc package is the total time for both sides. You will need to eject the disc and turn it over to record on both sides.

Is playback possible on a DVD player?

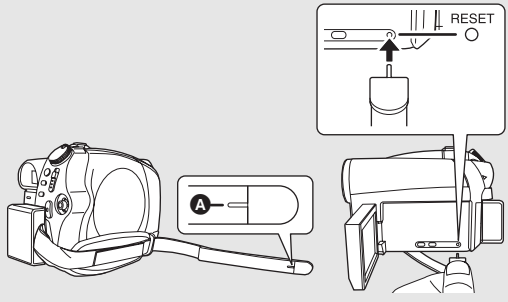
By finalizing a DVD-RW (VR format/Video format) or a DVD-R/DVD-R DL disc in this unit, it can be played back on a DVD player.
To playback a DVD-RAM, DVD-RW (VR format), or DVD-R DL disc, you will need a DVD recorder or a DVD player that supports DVD-RAM, DVD-RW (VR format) or DVD-R DL disc. Refer to the operating instructions of the DVD recorder or DVD player.

Troubleshooting

Problem	Check points
This unit cannot be turned on. **This unit does not stay on long enough.** **Battery runs down quickly.**	● Charge the battery using the AC adaptor. (➜ 18) ● The battery protection circuit may have operated. Attach the battery to the AC adaptor for 5 to 10 seconds. If the unit still cannot be used, the battery is faulty. ● Make sure the LCD monitor is opened or the viewfinder extended. ● The battery is affected by ambient temperature. In cold places, the battery using time becomes shorter. ● The battery has a limited life. If the operating time is still too short even after the battery is fully charged, the battery has worn out and needs to be replaced.
This unit is turned off automatically.	● If you do not use the unit for approximately 5 minutes, the power is automatically turned off to conserve battery life. To resume recording, turn the power back on. The power will not turn off automatically when the power save function (➜ 31) is set to [OFF].
This unit cannot be operated though it is turned on. **This unit does not operate normally.**	● The unit cannot be operated unless you open the LCD monitor or extend the viewfinder. ● Press the RESET button. (➜ 99) If normal conditions are not restored yet, remove the battery or AC adaptor, wait about 1 minute and then reconnect the battery or AC adaptor. Then about 1 minute later, turn on the power again. (Performing the above operation when the access lamp is on may destroy the data on the disc or SD card.)
A clicking sound is heard when the power is turned off.	● This is the sound of the lens moving and is not a malfunction.
The screen has changed suddenly. **(Demo mode is on.)**	● If you set [DEMO MODE] to [ON] without inserting a disc or an SD card in video recording mode or picture recording mode, the unit is automatically set to the demonstration mode for introducing its functions. Normally this should be set to [OFF]. (➜ 32)

Problem	Check points
The DISC EJECT lever does not work.	● The disc cover will not open unless the unit is powered. Connect a charged battery or AC adaptor. ● The DISC EJECT lever does not work after the unit is connected to the PC. Use Windows Explorer to right-click the drive icon and select [Eject]. Or select [Eject] from the software's menu.
The disc cannot be read.	● If there are fingerprints or dirt on the disc, wipe them off. (➜ 24)
A function indication such as the remaining time indication or the elapsed time indication is not shown.	● If you set [SETUP] → [DISPLAY] → [OFF], all indications other than warnings and date are not displayed.
Recording does not start, although power is supplied to the unit and the disc or SD card is correctly inserted.	● Rotate the mode dial to select or . ● If the DVD-RAM or the DVD-RW (VR format) disc is write-protected, release the protection. (➜ 70) If the DVD-RAM or DVD-RW (VR format) disc was protected on another device, use the same device to release the protection. ● Data cannot be recorded to finalized DVD-RW (Video format) and DVD-R/DVD-R DL discs. If you un-finalize a DVD-RW (Video format) disc, it can be used for recording. (➜ 69) ● No recording is possible while the SD card's write protect switch is set to LOCK. (➜ 26) ● If the disc or SD card has no more available memory, free up some memory by deleting unnecessary scenes (➜ 59) or use a new disc or SD card. ● If the cover of the disc compartment is open, this unit may not operate normally. Close the disc cover.
Recording starts but stops immediately. **The playback picture breaks up for a moment.**	● The disc is scratched or dirty. Eject the disc and clean it. (➜ 24) If there are scratches on the disc, use a new disc. ● The unit is hot. Follow the messages on the display. To use the unit again, turn the unit off and leave it for a while.
Recorded still pictures are not clear.	● If you try to record small or finely detailed objects with [PICT.QUALITY] set at [], the images may break up into a mosaic-like pattern. Record with [PICT.QUALITY] set at [] instead. (➜ 40)

Problem		Check points
Auto focus function does not work.	▶▶▶	● Press the AUTO button. ● There are some recording subjects and surroundings for which the auto focus does not operate correctly. (➜ 104) If so, use the manual focus mode to adjust the focus. (➜ 50)
“CHECK THE LENS COVER.” is displayed.	▶▶▶	● Open the lens cover before turning the unit on. ● This message may appear if you try to record in extremely dark places.
Sound is not played back from the built-in speaker of this unit.	▶▶▶	● During playback, move the volume lever to display the volume indication and adjust it. (➜ 55)
Although this unit is correctly connected to a TV, playback images cannot be seen. **The playback images are squeezed horizontally.**	▶▶▶	● Please read the operating instructions of your TV and select the video input that this unit is connected to. ● Change the setting to match the aspect ratio of the TV. (➜ 72)
Scenes or files cannot be deleted or edited.	▶▶▶	● Release the protection. (➜ 70) If the disc or the contents on the disc have been protected on another device, release the protection on the same device. ● It may not be possible to delete scenes that have been divided. Combine the divided scenes, and then delete them. (➜ 62) ● It may not be possible to delete scenes that are displayed as [[!]] on the thumbnail display. If the scenes are unnecessary, format the disc or SD card to erase the data. (➜ 71) Please be aware that if a disc or SD card is formatted then all the data recorded on the disc or SD card will be erased. ● If the SD card’s write protect switch is set to LOCK, then deletion and editing are disabled. (➜ 26) ● Locked files cannot be deleted. Release the lock setting. (➜ 66)
The images on the SD card do not look normal.	▶▶▶	● The data may be destroyed. It may have been destroyed by static or electromagnetic waves. Store important data on a PC or other products as well.

Problem	Check points
Even if a disc or an SD card is formatted, it cannot be used. ▶▶▶	● Either this unit or the disc or SD card may be damaged. Please contact consumer support. (➜ 113, 114) Use an SD card from 8 MB to 8 GB with this unit.
If the SD card is inserted in another device, it is not recognized. ▶▶▶	● Check that the device is compatible with the capacity or type of SD card (SD Memory Card/SDHC Memory Card) that you inserted. Refer to the operating instructions of the device for details.
The indication disappears. **The screen is frozen.** **No operation can be performed.** ▶▶▶	● No operation can be performed on this unit when it is connected to a PC. ● Turn off the power to this unit. If the power cannot be turned off, press the RESET button, or remove the battery or AC adaptor and then reattach it. Turn on the power again. If normal operation is still not restored, detach the power connected, and contact consumer support. (➜ 113, 114)
“PUSH THE RESET SWITCH.” or “CHECK THE DISC AFTER PUSHING THE RESET SWITCH TO REPAIR THE DATA.” is displayed. ▶▶▶	● After using the following method to restart the unit, eject the disc and clean it. (➜ 24) If there are scratches on the disc, use a new disc. ● The unit has automatically detected an error. Press the RESET button with the projecting part of the grip belt Ⓐ. This will restart the unit.  ● If you do not press the RESET button, the power to this unit is turned off automatically about 1 minute later. ● Even after you press the RESET button, the indication may still appear repeatedly. If so, this unit needs repair. Detach the power connected, and contact consumer support. (➜ 113, 114) Do not attempt to repair the appliance by yourself.

Problem		Check points
When connected by the USB cable, this unit is not detected by the PC.	▶▶▶	● Close the menu screen before connecting the USB cable. ● Select another USB terminal on the PC. ● Check the operating environment. (➜ 79) ● Disconnect the USB cable, turn the unit off then on and then reconnect the USB cable.
When the USB cable is disconnected, an error message will appear on the PC.	▶▶▶	● To disconnect the USB cable safely, double-click the () icon in the task tray and follow the instructions on the screen.

Cautions for use

About this unit

- The unit, disc and SD card become warm after long operation, but this is not a malfunction.

Keep the DVD Video Camera as far away as possible from electromagnetic equipment (such as microwave ovens, TVs, video games etc.).

- If you use the DVD Video Camera on top of or near a TV, the pictures and sound on the DVD Video Camera may be disrupted by electromagnetic wave radiation.
- Do not use the DVD Video Camera near cell phones because doing so may result in noise adversely affecting the pictures and sound.
- Recorded data may be damaged, or pictures may be distorted, by strong magnetic fields created by speakers or large motors.
- Electromagnetic wave radiation generated by microprocessors may adversely affect the DVD Video Camera, disturbing the pictures and sound.
- If the DVD Video Camera is adversely affected by electromagnetic equipment and stops functioning properly, turn the DVD Video Camera off and remove the battery or disconnect AC adaptor. Then reinsert the battery or reconnect AC adaptor and turn the DVD Video Camera on.

Do not use the DVD Video Camera near radio transmitters or high-voltage lines.

- If you record near radio transmitters or high-voltage lines, the recorded pictures and sound may be adversely affected.

Make sure to use the supplied cords and cables. If you use optional accessories, use the cords and the cables supplied with them. Do not extend the cords and the cables.

Do not spray insecticides or volatile chemicals onto the unit.

- If the unit is sprayed with such chemicals, its body may be marred and the surface finish may peel off.
- Do not leave rubber or plastic products in contact with the unit for a long time.

When you use the unit in a sandy or dusty place such as a beach, do not let sand or fine dust get into the body and terminals of the unit.

Also, keep the unit away from sea water.

- Sand or dust may damage the unit. (Care should be taken when inserting and removing a disc or an SD card.)
- If sea water splashes onto the unit, wipe off the water with a well wrung cloth. Then wipe the unit again with a dry cloth.

When carrying the unit, do not drop or bump it.

- A strong impact can break the unit's casing, causing it to malfunction.

Do not use benzine, paint thinner or alcohol for cleaning the unit.

- Before cleaning, detach the battery or pull out the AC cable from the AC outlet.
- The camera body may be discolored and the surface finish may peel off.
- Wipe the unit with a soft dry cloth to remove dust and fingerprints. To remove stubborn stains, thoroughly wring a cloth that has been soaked in a neutral detergent diluted with water and wipe the unit with it. Afterwards, wipe it with a dry cloth.
- When you use a chemical dust cloth, follow the instructions that came with the cloth.

Do not touch the laser pickup lens.

- If you touch the laser pickup lens directly it may cause malfunctions.

Do not use any other lens cleaners except a commercial available 8 cm (3″) DVD video camera lens cleaner.

- Using any other lens cleaners except the one for 8 cm (3″) DVD video camera could cause this unit to malfunction.

Do not use the unit for surveillance purposes or other business uses.

- If you use the unit for a long time, heat will build up inside it and this may cause a malfunction.
- This unit is not intended for industrial use.

When you are not going to use the unit for an extended time

- When storing the unit in a cupboard or cabinet, it is recommended that you place a desiccant (silica gel) in with it.

About the battery

The battery used in this unit is a rechargeable lithium-ion battery. It is susceptible to humidity and temperature and the effect increases the more the temperature rises or falls. In cold areas, the full charge indication may not appear or the low battery indication may appear about 5 minutes after starting use. At high temperatures, the protection function may be triggered, making it impossible to use the unit.

Be sure to detach the battery after use.

- If the battery is left attached, a minute amount of current continues to flow even if the unit's power is off. Keeping the unit in this state may result in over discharge of the battery. This may result in you not being able to use the battery even after it is charged.
- The battery should be stored in the vinyl bag so metal does not come into contact with the terminals.
- The battery should be stored in a cool place free from humidity, with as constant temperature as possible. (Recommended temperature: 15 °C to 25 °C (59 °F to 77 °F), Recommended humidity: 40% to 60%)
- Extremely high temperatures or low temperatures will shorten the life of the battery.
- If the battery is kept in high-temperature, high-humidity, or oily-smoky places, the terminals may rust and cause malfunctions.
- To store the battery for a long period of time, we recommend you charge it once every year and store it again after you have completely used up the charged capacity.
- Dust and other matter attached to the battery terminals should be removed.

Prepare spare batteries when going out for recording.

- Prepare batteries for use up to 3 to 4 times the period you are planning to record for.
- Cold places such as a ski resort can shorter the period which you can record for.

If you drop the battery accidentally, check to see if the terminals are damaged.

- Attaching a battery with damaged terminals can damage the unit or AC adaptor.

Do not throw old battery into fire.

- Heating a battery or throwing it into a fire may result in an explosion.
- If the operating time is very short even after the battery has been recharged, the battery has worn out. Please purchase a new battery.

About the AC adaptor

- If the temperature of the battery is extremely high or extremely low, charging may take time or the battery may not be charged.
- If the CHARGE lamp keeps flashing, make sure that the terminals of the battery or the AC adaptor are not exposed to dirt, foreign objects or dust, then reconnect them properly.
 If the charging lamp is still flashing, something may be wrong with the battery or AC adaptor. Contact consumer support. (➜ 113, 114)
- If you use the AC adaptor near a radio, radio reception may be disturbed. Keep the AC adaptor 1 m (3.3 feet) or more away from the radio.
- When using the AC adaptor, it may generate whirring sounds. However, this is normal.
- After use, be sure to disconnect the AC adaptor. (If it is left connected, a minute amount of current is consumed.)
- Always keep the electrodes of the AC adaptor and battery clean.

LCD monitor/viewfinder

- When the LCD monitor gets dirty, wipe it with a dry soft cloth.
- In a place with drastic temperature changes, condensation may form on the LCD monitor. Wipe it with a soft dry cloth.
- When the unit has become very cold, for example due to storage in a cold area, its LCD monitor will be slightly darker than usual immediately after the power is turned on. The normal brightness will be restored when the unit's internal temperature rises.

Extremely high precision technology is employed to produce the LCD Monitor screen featuring a total of approximately 123,000 pixels. The result is more than 99.99% effective pixels with a mere 0.01% of the pixels inactive or always lit. However, this is not a malfunction and does not affect the recorded picture.

Extremely high precision technology is employed to produce the viewfinder screen featuring a total of approximately 113,000 pixels. The result is more than 99.99% effective pixels with a mere 0.01% of the pixels inactive or always lit. However, this is not a malfunction and does not affect the recorded picture.

About condensation

When condensation forms on the unit, the lens will cloud up and the unit may not work properly. Make every effort to ensure that condensation does not form. If it does form, take the actions described below.

Causes of condensation

Condensation takes place when the ambient temperature or humidity is changed as follows.

- When this unit is brought inside from the cold (e.g. a ski slope) to a warm room.
- When this unit is moved from an air-conditioned car to outside.
- When a cold room has been warmed up quickly.
- When cool wind from an air conditioner is directly blown onto this unit.
- After summer afternoon showers of rain.
- When this unit is in a very humid place where the air is thick with steam. (e.g. a heated swimming pool)

Helpful hint

If, for example, you have used this unit for recording on a ski slope and are taking it into a heated room, place the unit inside a plastic bag, remove as much of the air from inside the bag as possible, then seal the bag. Leave the unit for about an hour in the room so the temperature of the unit is close to the ambient temperature of the room, then use it.

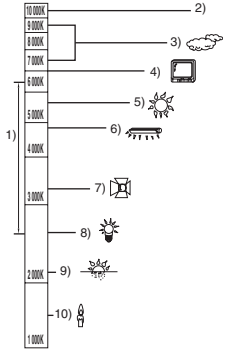
Licenses

- SDHC Logo is a trademark.
- U.S. Patent Nos. 6,836,549; 6,381,747; 7,050,698; 6,516,132; and 5,583,936.
 This product incorporates copyright protection technology that is protected by U.S. patents and other intellectual property rights. Use of this copyright protection technology must be authorized by Macrovision, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision. Reverse engineering or disassembly is prohibited.
- Manufactured under license from Dolby Laboratories.
 Dolby and the double-D symbol are trademarks of Dolby Laboratories.
- Microsoft®, Windows®, Windows Vista®, DirectDraw®, DirectSound®, DirectX®, and Internet Explorer® are either registered trademarks or trademarks of the Microsoft Corporation in the United States and/or other countries.
- Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation.
- IBM, PC/AT and PowerPC are registered trademarks of International Business Machines Corporation of the U.S.
- Intel®, Core™ and Pentium® are the registered trademarks or trademarks of the Intel Corporation in the United States and other countries.
- Macintosh and Mac OS are either registered trademarks or trademarks of Apple Inc. in the United States and/or other countries.
- Other names of systems and products mentioned in these instructions are usually the registered trademarks or trademarks of the manufacturers who developed the system or product concerned.

Explanation of terms

Automatic white balance

White balance adjustment recognizes the color of light and adjusts so the white color will become a purer white. The unit determines the hue of light that comes through the lens and white balance sensor, thereby judging the recording condition, and selects the closest hue setting.
This is called automatic white balance adjustment.
However, since the unit only stores white color information under certain light sources, automatic white balance adjustment does not function normally under other light sources.



The illustration above shows the range over which the auto white balance functions.

1) The effective range of automatic white balance adjustment on this unit
2) Blue sky
3) Cloudy sky (rain)
4) TV screen
5) Sunlight
6) White fluorescent lamp
7) Halogen light bulb
8) Incandescent light bulb
9) Sunrise or sunset
10) Candlelight

Outside of the effective range of automatic white balance adjustment, the image will become reddish or bluish. Even within the effective range of automatic white balance adjustment, the automatic white balance adjustment may not function properly if there is more than one light source. For light outside the functional automatic white balance adjustment range, use the manual white balance adjustment mode.

White balance adjustment

White balance adjustment determines the white color under different light sources. By recognizing which is the white color under sunlight and which is the white color under a fluorescent light, the unit can adjust the balance among the other colors.
Since the white color is the reference for all the colors, the unit can record pictures in a natural hue if it can recognize the reference color white.

Auto focus

The lens is moved forward or backward automatically to bring the subject into focus.

Auto focus has the following characteristics.

- Adjusts so that the vertical lines of a subject are seen more clearly.
- Attempts to bring an object with higher contrast into focus.
- Focuses on the screen center only.

Due to these characteristics, auto focus does not work correctly in the following situations. Record pictures in the manual focus mode.

Recording distant and close-up objects at the same time

Since the unit focuses on whatever is at the center of the screen, it is difficult to bring the background into focus when close-up objects are placed in focus. When recording people with distant mountains in the background, you cannot focus on both the subject which is close-up and the objects which are in the distance.

Recording a subject behind a dirty or dusty window

The subject behind the window will not be focused because the focus is on the dirty window.

Similarly, when recording something on the opposite side of a road with heavy traffic, a vehicle that happens to pass by may be brought into focus.

Recording a subject that is surrounded by objects with glossy surfaces or by highly reflective objects

Since whatever is shiny or glistens is brought into focus, it is hard to focus on the subject to be recorded. The focus may become blurry when recording subjects at the beach, at night or in scenes involving fireworks or special lights.

Recording a subject in dark surroundings

The unit cannot focus correctly because the light information that comes through the lens decreases considerably.

Recording a fast-moving subject

As the focus lens-inside moves mechanically, it cannot keep up with a fast-moving subject. When, for example, recording a sports event with fast moving subjects, the focus may lose its sharpness.

Recording a subject with little contrast

It is easy to bring subjects with a sharp contrast or vertical lines or stripes into focus. This means that a subject with little contrast, such as a white wall, may become blurry because the unit achieves focus based upon the vertical lines of an image.

Specifications

DVD Video Camera

Information for your safety

Power source:	DC 9.3 V/7.2 V
Power consumption:	Recording 5.9 W

Signal system	EIA Standard: 525 lines, 60 fields NTSC color signal
Recording format	DVD Video Recording format (DVD-RAM, DVD-RW) DVD-Video format (DVD-RW, DVD-R, DVD-R DL)
Image sensor	1/6″ CCD image sensor Total: 800 K Effective pixels: Moving picture: 290 K (4:3), 380 K (16:9) Still picture: 290 K (4:3), 380 K (16:9)
Lens	Auto Iris, F1.9 to F4.3 Focal length: 1.8 mm to 75.6 mm Macro (Full range AF)
Zoom	42× optical zoom, 70/2000× digital zoom
Monitor	2.7″ wide LCD monitor (approx. 123 K pixels)
Viewfinder	Color electric viewfinder (approx. 113 K pixels)
Microphone	Stereo (with a zoom function)
Speaker	1 round speaker ∅ 20 mm
Standard illumination	1,400 lx
Minimum required illumination	6 lx (approx. 2 lx with the MagicPix function)
Video output level	1.0 Vp-p, 75 Ω
Audio output level (Line)	316 mV, 600 Ω
USB	Card reader/writer function (No copyright protection support) Hi-Speed USB (USB 2.0) compliant PictBridge-compliant
Dimensions (excluding the projecting parts)	52.8 mm (W) × 89.5 mm (H) × 128.6 mm (D) [2.08″ (W) × 3.52″ (H) × 5.06″ (D)]
Mass (Weight) (without battery and a disc)	Approx. 400 g (0.88 lbs.)
Operating temperature	0 °C to 40 °C (32 °F to 104 °F) (0 °C to 30 °C (32 °F to 86 °F) when connected to the PC)
Operating humidity	10% to 80%

Motion pictures

Recording media	8 cm (3″) DVD-RAM Ver. 2.1 8 cm (3″) DVD-RW Ver. 1.1/2X-SPEED (2X/1X) 8 cm (3″) DVD-R for General Ver. 2.0 8 cm (3″) DVD-R for DL Ver. 3.0
Compression	MPEG2
Recording mode and transfer rate	XP: 10 Mbps (VBR) (Approx. 18 min recordable time on a single-sided DVD-RAM) SP: 5 Mbps (VBR) (Approx. 37 min recordable time on a single-sided DVD-RAM) LP: 2.5 Mbps (VBR) (Approx. 75 min recordable time on a single-sided DVD-RAM)
Audio compression	Dolby Digital, 16 bit (48 kHz/2 ch)

Still pictures

Recording media	SD Memory Card: 8 MB/16 MB/32 MB/64 MB/128 MB/256 MB/512 MB/1 GB/2 GB (FAT12 and FAT16 format corresponding) SDHC Memory Card: 4 GB/8 GB (FAT32 format corresponding)
Compression	JPEG (Design rule for Camera File system, based on Exif 2.2 standard), DPOF corresponding
Picture size	640×480 (4:3), 640×360 (16:9)

AC adaptor
Information for your safety

Power source:	AC 110 V to 240 V, 50/60 Hz
Power consumption:	19 W
DC output:	DC 9.3 V, 1.2 A (Unit operation) DC 8.4 V, 0.65 A (Battery charging)

Dimensions	92 mm (W) × 33 mm (H) × 61 mm (D) [3.6″ (W) × 1.3″ (H) × 2.4″ (D)]
Mass (Weight)	Approx. 115 g (0.25 lbs.)

Specifications may change without prior notice.

Number of recordable pictures on an SD card

Picture size	0.3M (640×480)		0.2M (640×360)	
Picture quality				
8 MB	42	86	42	86
16 MB	97	195	97	195
32 MB	210	420	210	420
64 MB	430	870	430	870
128 MB	820	1650	820	1650
256 MB	1710	3430	1710	3430
512 MB	3400	6790	3400	6790
1 GB	6800	13600	6800	13600
2 GB	13830	27660	13830	27660
4 GB	27150	54310	27150	54310
8 GB	55260	99999	55260	99999

- The number of recordable pictures depends on whether [] and [] are used together and on the subject being recorded.
- The numbers shown in the table are approximations.
- The memory capacity indicated on the label of an SD card is the total of the capacity for copyright protection and management and the capacity which can be used on the unit, a PC etc.

Optional accessories

Accessory No.	Figure	Description
LM-AF30U		8 cm (3″) DVD-RAM (single sided)
LM-AF60U		8 cm (3″) DVD-RAM (double sided)
LM-RW30U		8 cm (3″) DVD-RW (single sided)
LM-RW60U		8 cm (3″) DVD-RW (double sided)
LM-RF30V		8 cm (3″) DVD-R (single sided)
LM-RF60V		8 cm (3″) DVD-R (double sided)
LM-RF55LV		8 cm (3″) DVD-R DL (dual layer on single side)
VW-AD21PP-K		AC adaptor with AC Cable and DC Cables
VW-VBG130*1		1320 mAh/Rechargeable Lithium Ion Battery Pack
VW-VBG260*1		2640 mAh/Rechargeable Lithium Ion Battery Pack
VW-VBG6*1*2		5800 mAh/Rechargeable Lithium Ion Battery Pack
VW-VH04		Battery Pack Holder Kit
RP-SDR01GU1A RP-SDR512U1A RP-SDR256U1A		Class 2 1 GB SD Memory Card Class 2 512 MB SD Memory Card Class 2 256 MB SD Memory Card
RP-SDM04GU1K RP-SDM02GU1A		Class 4 4 GB SDHC Memory Card Class 4 2 GB SD Memory Card
RP-SDV08GU1K RP-SDV04GU1K RP-SDV02GU1A RP-SDV01GU1A		Class 6 8 GB SDHC Memory Card Class 6 4 GB SDHC Memory Card Class 6 2 GB SD Memory Card Class 6 1 GB SD Memory Card

*1 Please refer to page 19 concerning the battery charging time and available recording time.

*2 The battery pack holder kit VW-VH04 (optional) is necessary.

NOTE: Accessories and/or model numbers may vary by country. Please consult your local dealer.

Accessory Order Form (For USA Customers)

Please photocopy this form when placing an order.

1. Model # _____

2. Items Ordered

Accessory #	Description	Price Each	Quantity	Total Price
			Subtotal	
			Your State & Local Sales Tax	
			Shipping & Handling	6.95
			Total Enclosed	

3. Method of payment (check one)

☐ Check of Money Order enclosed (NO C.O.D.SHIPMENTS)

☐ VISA Credit Card # _____

☐ MasterCard Expiration Date _____

☐ Discover Customer Signature _____

Make Check or Money Order Payable to: PANASONIC ACCESSORIES

(Please do not send cash)

4. Shipping information (UPS delivery requires complete street address)

Ship To:
Mr.
Mrs.
Ms. _____
First Last

Street Address

_____ _____ _____
City State Zip

Phone#:
Day () _____
Night () _____

TO OBTAIN ANY OF OUR ACCESSORIES YOU CAN DO ANY OF THE FOLLOWING:
VISIT YOUR LOCAL PANASONIC DEALER
OR
CALL PANASONIC'S ACCESSORY ORDER LINE AT 1-800-332-5368
[6 AM-6 PM M-F, PACIFIC TIME]
OR
MAIL THIS ORDER TO: PANASONIC SERVICE AND TECHNOLOGY COMPANY
ACCESSORY ORDER OFFICE
20421 84th Avenue South Kent, WA. 98032

In CANADA, please contact your local Panasonic dealer for more information on Accessories.

Request for Service Notice (USA Only)

Please photocopy this form when making a request for service notice, in the unlikely event this product needs service.

Request for Service Notice:

- Please include your **proof of purchase.** (Failure to do so will delay your repair.)
- To further speed your repair, please provide an explanation of what is wrong with the unit and any symptom it is exhibiting.

Mail this completed form and your Proof of Purchase along with your unit to:

Panasonic Camera and Digital Service Center
1590 Touhy Ave.
Elk Grove Village, IL 60007

Limited Warranty (For USA Customers)

PANASONIC CONSUMER ELECTRONICS
COMPANY, DIVISION OF PANASONIC
CORPORATION OF NORTH AMERICA
One Panasonic Way, Secaucus, New Jersey 07094

PANASONIC PUERTO RICO, INC.
Ave. 65 de Infantería, Km. 9.5 San Gabriel Industrial Park,
Carolina, Puerto Rico 00985

Panasonic Video Products
Limited Warranty

Limited Warranty Coverage

If your product does not work properly because of a defect in materials or workmanship, Panasonic Consumer Electronics Company or Panasonic Puerto Rico, Inc. (collectively referred to as "the warrantor") will, for the length of the period indicated on the chart below, which starts with the date of original purchase ("warranty period"), at its option either (a) repair your product with new or refurbished parts, or (b) replace it with a new or a refurbished product. The decision to repair or replace will be made by the warrantor.

Product	Parts	Labor	Service	Contact Number
Camcorder	One (1) Year (except CCD Image Sensor) CCD Image Sensor - 6 (Six) Months	Ninety (90) Days Ninety (90) Days	Carry-In or Mail-In	1-800-211-PANA(7262)
DVD/VCR Deck, A/V Mixer	One (1) Year	Ninety (90) Days	Carry-In or Mail-In	1-800-211-PANA(7262)
TV/VCR, TV/DVD, TV/DVD/VCR Combination	One (1) Year (except CRT) CRT - Two (2) Years	Ninety (90) Days Ninety (90) Days	Carry-In: 21" CRTand Smaller In-Home or Carry-In: 22" CRT and Larger	1-800-211-PANA(7262)
TV/HDR Combination	One (1) Year (except CRT) CRT - Two (2) Years	Ninety (90) Days Ninety (90) Days	In-Home or Carry-In	1-888-843-9788
Rechargeable Batteries (in exchange for defective item)	Ten (10) Days	Not Applicable	Carry-In or Mail-In	1-800-211-PANA(7262)
Tape (in exchange for defective item)	Five (5) Days	Not Applicable	Carry-In or Mail-In	1-800-211-PANA(7262)
Memory Cards (in exchange for defective item)	Ninety (90) Days	Not Applicable	Carry-In or Mail-In	1-800-211-PANA(7262)

During the "Labor" warranty period there will be no charge for labor. During the "Parts" warranty period, there will be no charge for parts. You must carry-in or mail-in (prepaid) your product or arrange for in-home service, as applicable, during the warranty period.
If non-rechargeable batteries are included, they are not warranted. This warranty only applies to products purchased and serviced in the United States or Puerto Rico. This warranty is extended only to the original purchaser of a new product which was not sold "as is".
A purchase receipt or other proof of the original purchase date is required for warranty service.

Carry-In, Mail-in (Prepaid) or In-Home Service

For Carry-In, Mail-In (prepaid) or In-HomeService (as applicable) in the United States call toll free contact number listed above or visit Panasonic Web Site: http://www.panasonic.com
For assistance in Puerto Rico call Panasonic Puerto Rico, Inc. (787)-750-4300 or fax (787)-768-2910.
In-Home service, if applicable, requires clear, complete and easy access to the product by the authorized servicer and does not include removal or re-installation of an installed product. It is possible that certain in-home repairs will not be completed in-home, but will require that the product, or parts of the product, be removed for shop diagnosis and/or repair and then returned.

Limited Warranty Limits And Exclusions

This warranty ONLY COVERS failures due to defects in materials or workmanship, and DOES NOT COVER normal wear and tear or cosmetic damage, nor does it cover markings or retained images on the picture tube resulting from viewing fixed images (including, among other things, letterbox pictures on standard 4:3 screen TV's, or non-expanded standard 4:3 pictures on wide screen TV's, or onscreen data in a stationary and fixed location). The warranty ALSO DOES NOT COVER damages which occurred in shipment, or failures which are caused by products not supplied by the warrantor, or failures which result from accidents, misuse, abuse, neglect, bug infestation, mishandling, misapplication, alteration, faulty installation, set-up adjustments, misadjustment of consumer controls, improper maintenance, power line surge, lightning damage, modification, or commercial use (such as in a hotel, office, restaurant, or other business), rental use of the product, service by anyone other than a Factory Service Center or other Authorized Servicer, or damage that is attributable to acts of God.

THERE ARE NO EXPRESS WARRANTIES EXCEPT AS LISTED UNDER "LIMITED WARRANTY COVERAGE". THE WARRANTOR IS NOT LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THIS PRODUCT, OR ARISING OUT OF ANYBREACH OF THIS WARRANTY.

(As examples, this excludes damages for lost time, cost of having someone remove or re-install an installed unit if applicable, or travel to and from the servicer, loss of media or images, data or other memory or recorded content. The items listed are not exclusive, but are for illustration only.)

ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING THE WARRANTY OF MERCHANTABILITY, ARE LIMITED TO THE PERIOD OF THE LIMITED WARRANTY.

Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state. If a problem with this product develops during or after the warranty period, you may contact your dealer or Service Center. If the problem is not handled to your satisfaction, then write to the warrantor's Consumer Affairs Department at the addresses listed for the warrantor.

PARTS AND SERVICE (INCLUDING COST OF AN IN-HOME SERVICE CALL, WHERE APPLICABLE) WHICH ARE NOT COVERED BY THIS LIMITED WARRANTY ARE YOUR RESPONSIBILITY.

Customer Services Directory

Service in Canada: As per Service Center listed in Canadian warranty information ➜ 114

Obtain Product Information and Operating Assistance; locate your nearest Dealer or Service Center; purchase Parts and Accessories; or make Customer Service and Literature requests by visiting our Web Site at:

http://www.panasonic.com/consumersupport

or, contact us via the web at:

http://www.panasonic.com/contactinfo

You may also contact us directly at:
1-800-211-PANA (7262),
Monday-Friday 9 am-9 pm; Saturday-Sunday 10 am-7 pm, EST

For hearing or speech impaired TTY users, TTY : 1-877-833-8855

Accessory Purchases

Purchase Parts, Accessories and Instruction Books online for all Panasonic Products by visiting our Web Site at:

http://www.pstc.panasonic.com

or, send your request by E-mail to:

npcparts@us.panasonic.com

You may also contact us directly at:
1-800-332-5368 (Phone) 1-800-237-9080 (Fax Only) (Monday – Friday 9 am to 9 pm, EST.)
Panasonic Service and Technology Company
20421 84th Avenue South,
Kent, WA 98032
(We Accept Visa, MasterCard, Discover Card, American Express, and Personal Checks)

For hearing or speech impaired TTY users, TTY : 1-866-605-1277

Product Repairs

Centralized Factory Service Center

MAIL TO: Panasonic Camera and Digital Service Center
1590 Touhy Ave.
Elk Grove Village, IL 60007

Please carefully pack and ship, prepaid and insured, to the Elk Grove Village Centralized Factory Service Center
Customer's in Puerto Rico, please ship or carry in to location below ("Service in Puerto Rico").

Service in Puerto Rico
Panasonic Puerto Rico, Inc.
Ave. 65 de Infantería, Km. 9.5, San Gabriel Industrial Park,
Carolina, Puerto Rico 00985
Phone (787)750-4300, Fax (787)768-2910

As of January 2007

Warranty (For Canadian Customers)

Panasonic Canada Inc.
5770 Ambler Drive, Mississauga, Ontario L4W 2T3

PANASONIC PRODUCT – LIMITED WARRANTY

Panasonic Canada Inc. warrants this product to be free from defects in material and workmanship and agrees to remedy any such defect for a period as stated below from the date of original purchase.

Camcorder Product – One (1) year, parts and labour

LIMITATIONS AND EXCLUSIONS

This warranty does not apply to products purchased outside Canada or to any product which has been improperly installed, subjected to usage for which the product was not designed, misused or abused, damaged during shipping, or which has been altered or repaired in any way that affects the reliability or detracts from the performance, nor does it cover any product which is used commercially. Dry cell batteries are also excluded from coverage under this warranty.
This warranty is extended to the original end user purchaser only. A purchase receipt or other proof of date of original purchase is required before warranty service is performed.
THIS EXPRESS, LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
IN NO EVENT WILL PANASONIC CANADA INC. BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES.
In certain instances, some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, or the exclusion of implied warranties, so the above limitations and exclusions may not be applicable.

WARRANTY SERVICE

FOR PRODUCT OPERATION ASSISTANCE, please contact:

Our Customer Care Centre:	Telephone #:	(905) 624-5505
	1-800 #:	1-800-561-5505
	Fax #:	(905) 238-2360
	Email link:	“Customer support” on www.panasonic.ca

FOR PRODUCT REPAIRS, please locate your nearest Authorized Servicentre at www.panasonic.ca :

Link: “Servicentres™ locator” under “Customer support”

IF YOU SHIP THE PRODUCT TO A SERVICENTRE
Carefully pack and send prepaid, adequately insured and preferably in the original carton.
Include details of the defect claimed, and proof of date of original purchase.

Index

■ A
AC adaptor 18, 21, 102
Aperture 52
Aspect ratio 48
Auto focus 104
Auto slow shutter 48
Automatic white balance 51, 104

■ B
Backlight compensation 46
Battery 18, 19, 102
Beep sound 31

■ C
Charging time 19

■ D
Date and time display 33
Delete 59
Demo mode 32
Digital zoom 42
Disc 22, 25
 Information 70
Display 31
DPOF setting 67
Dubbing 73, 74
DVD-RAM, DVD-RW, DVD-R, DVD-R DL . . . 22

■ F
Fade 46
Finalize 68
Format 71
Frame-by-frame playback 55

■ G
Gain 52
Guideline 48

■ H
Help mode 46

■ I
Image stabilizer function 43
Initial setting 32
Iris 52

■ L
Language 31
LCD monitor 14, 34, 102
Locking still pictures 66

■ M
MagicPix function 46
Manual focus 49, 50
Menu 30
Motion picture playback 54
Motion picture recording 37

■ N
Number of recordable pictures 108

■ O
Operation icons 44

■ P
Pickup lens 25
PictBridge 75
Picture quality 40
Picture size 40
Playing back motion pictures by date 56
Playlist 63
Power save 31
Protect (Disc) 70

■ R
Recording mode 38
Recording time elapsed 37
Recovery (Disc) 93
Remaining number of still pictures 39
Remaining time 37
Resume playback 56

■ S
Scene mode 50
SD card 26, 27
Self-recording 42
Self-timer recording 47
Shutter effect 40
Shutter speed 52
Skip playback 54
Slow-motion playback 55
Soft skin mode 46
Still picture compatibility 58
Still picture playback 57
Still picture recording 39

■ T
TV aspect 72

■ U
Un-finalize 69

■ V
Video format 22
Viewfinder 15, 34, 102
Volume adjustment 55
VR format 22

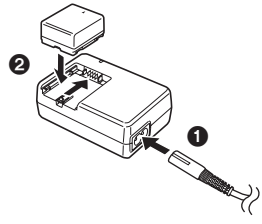
■ W
White balance 51, 104
Wind noise reduction function 48

■ Z
Zoom 41
Zoom microphone 42

Spanish Quick Use Guide/ Guía española para el uso rápido

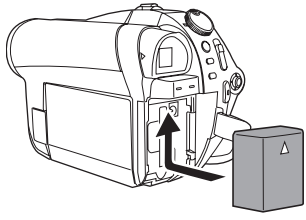
■ Carga de la batería

1 **Conecte el cable de CA al adaptador de CA y a la toma de CA.**
2 **Inserte la batería en el cargador de baterías alineando las flechas.**



■ Inserción de la batería

Empuje la batería contra el compartimiento de la batería y deslícela hasta escuchar un clic.

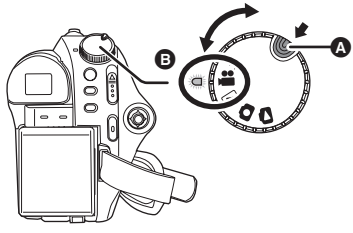


- Para extraer la batería, mientras desliza la palanca BATTERY, deslice la batería.

■ Cómo encender la cámara

Mientras pulsa el botón de desbloqueo Ⓐ, ajuste el selector de modo a , , o .

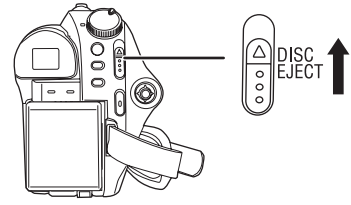
- Alinee con el indicador de estado Ⓑ.



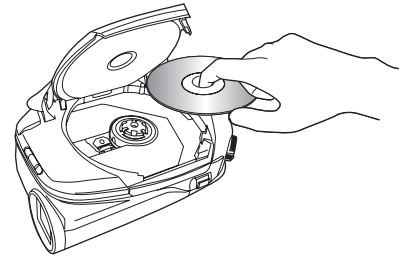
- Para apagar la cámara, ajuste el selector de modo a OFF.

■ Inserción de un disco

1 **Deslice la palanca DISC EJECT hacia arriba y suéltela.**



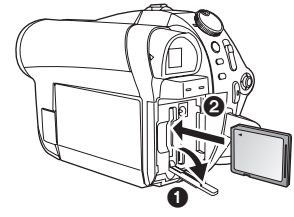
2 **Abra la tapa del compartimiento del disco e inserte el disco.**



3 **Apriete la sección marcada con PUSH CLOSE para cerrar la tapa.**

■ Inserción de una tarjeta SD

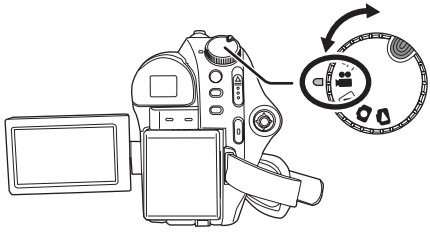
1 **Abra la tapa de la ranura para tarjetas SD y, a continuación, inserte la tarjeta SD.**



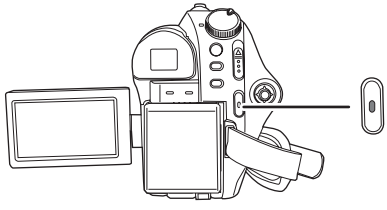
2 **Cierre bien la tapa de la ranura para tarjetas SD.**

■ Grabación de imágenes en movimiento

● Gire el selector de modo para seleccionar .



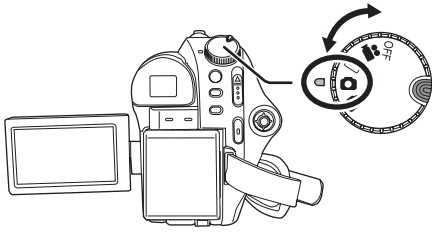
1 Pulse el botón de inicio/detención de la grabación para empezar la grabación.



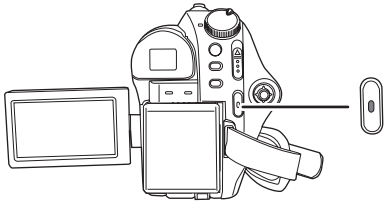
2 Pulse de nuevo el botón de inicio/ detención de la grabación para interrumpir la grabación.

■ Grabación de imágenes fijas

● Gire el selector de modo para seleccionar .

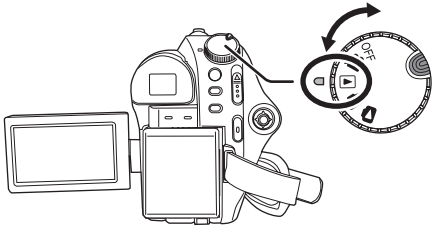


Pulse el botón de inicio/detención de la grabación.

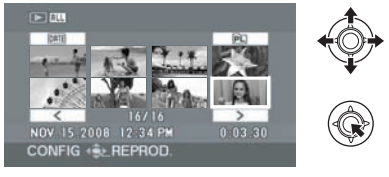


■ Reproducción

● Gire el selector de modo para seleccionar o .



1 Seleccione la escena/fichero a reproducir y, a continuación, pulse el joystick.



2 Seleccione la operación de reproducción con el joystick.

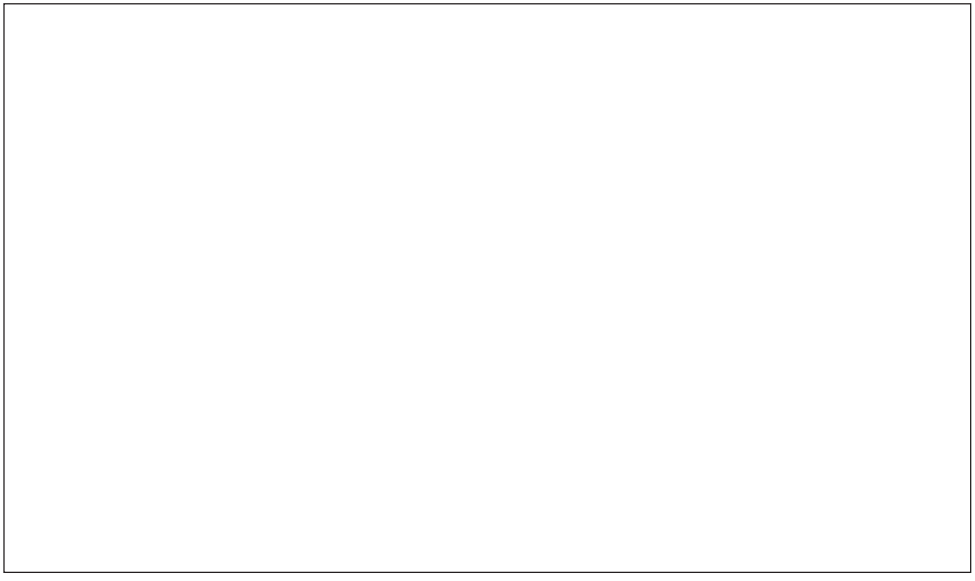


Reproducción de imágenes en movimiento

►/❚❚: Reproducción/Pausa
|◄◄: Salto reproducción (hacia atrás)
►►|: Salto reproducción (hacia delante)
■: Detiene la reproducción y muestra las miniaturas.

Reproducción de imágenes fijas

►/❚❚: Inicio/pausa exposición de diapositivas.
◄❚❚: Reproduce la imagen anterior.
❚❚►: Reproduce la imagen siguiente.
■: Detiene la reproducción y muestra las miniaturas.



Panasonic Consumer Electronics Company,
Division of Panasonic Corporation of North America
One Panasonic Way, Secaucus, NJ 07094

Panasonic Puerto Rico, Inc.
Ave. 65 de Infantería, Km. 9.5, San Gabriel Industrial Park, Carolina, Puerto Rico 00985

Panasonic Canada Inc.
5770 Ambler Drive, Mississauga, Ontario, L4W 2T3

P

LSQT1319 A
F1207MC

Printed in Indonesia